In Two Sections—Section 1

GEOGRAPHY, RESOURCES & INDUSTRIES

January, 1944

EDISON ELECTRIC INSTITUTE BULLETIN

Electricity's Record-Breaking Year—1943 1

The Significance of the Term "Net Property" as Applied to Public Utilities . . . . . S. FERGUSON 6

The Record Tells the Story of Puget Power . . . . . FRANK McLAUGHLIN 11

Post-War Man-Power Problems . . . . MORRIS S. VITELES 15

Highlights of Commercial Activity in 1943 . . . . . C. E. GREENWOOD 19

New Techniques in Leadership . . . . CLYDE V. HUSSEY 23

Concealed Knob and Tube, and Open Cleat Wiring Chart 26

Ten Years Without Progress in Accident Prevention . . . . . K. R. MacKINNON 27

The Present Challenge of Rural Electrification . . . . . C. H. LEATHAM 29

Personals 31

Conventions and Meetings, 32

PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

October, 1942 and 1943

SOURCE AND DISPOSAL OF ENERGY—MONTH OF OCTOBER

	1943	1942	%
GENERATION* (Net)			
By Fuel Burning Plants	14,051,347,000	11,244,000,000	+25.0
By Water Power Plants	5,504,329,000	5,508,500,000	− 0.1
Total Generation	**19,555,676,000**	**16,752,500,000**	**+16.7**
Add—Net Imports Over International Boundaries	103,327,000	120,500,000	−14.3
Less—Company Use	224,235,000	191,800,000	+16.9
Less—Energy Used by Producer	724,104,000	310,000,000	+133.6
Net Energy for Distribution	**18,710,664,000**	**16,371,200,000**	**+14.3**
Losses and Unaccounted For	2,363,493,000	2,401,406,000	− 1.6
Sales to Ultimate Customers	**16,347,171,000**	**13,969,794,000**	**+17.0**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of October 31st			
Residential or Domestic	26,893,616**	26,617,516	+ 1.0
Rural (Distinct Rural Rates)	1,093,123	1,098,961	.....
Commercial or Industrial:			
Small Light and Power	4,166,546	4,256,625	− 1.2
Large Light and Power	148,814	152,126	
Other Customers	119,696	124,650	.....
Total Ultimate Customers	**32,421,795**	**32,249,878**	**− 0.5**
KILOWATTHOUR SALES—During Month of October			
Residential or Domestic	2,358,296,000**	2,223,073,000	+ 6.1
Rural (Distinct Rural Rates)	313,536,000	269,389,000	+16.4
Commercial or Industrial:			
Small Light and Power	2,432,243,000	2,271,613,000	+ 7.0
Large Light and Power	9,505,126,000	7,946,046,000	+19.6
Street and Highway Lighting	186,256,000	185,380,000	+ 0.5
Other Public Authorities	879,553,000	396,043,000	+122.1
Railways and Railroads:			
Street and Interurban Railways	371,305,000	354,591,000	+ 4.7
Electrified Steam Railroads	219,873,000	205,824,000	+ 6.8
Interdepartmental	80,983,000	117,835,000	−31.3
Total to Ultimate Customers	**16,347,171,000**	**13,969,794,000**	**+17.0**
Revenue from Ultimate Customers	**$263,086,700****	**$243,094,100**	**+ 8.2**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—For the 12 Months Ended October 31st**			
Kilowatthours per Customer	1,062	1,018	+ 4.3
Average Annual Bill	$38.66	$37.46	+ 3.2
Revenue per Kilowatthour	3.64¢	3.68¢	− 1.1

(*) By courtesy of the Federal Power Commission.
(**) Above data reflects results of bi-monthly billings on part of certain large companies.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 12 JANUARY, 1944 No. 1

Electricity's Record-Breaking Year—1943

Electric Power Production Justifies Industry's Predictions

THE year 1943 has justified the optimistic predictions which the electric utility industry has consistently made as to its ability to supply the war load of the United States. No war program has been delayed by lack of electric generating capacity and, at the same time, full service has been maintained to the civilian population.

This year the long-time trends which heretofore prevailed in the electric light and power industry have continued with little change. The 25 per cent increase during the year in the sales of industrial power measures the great expansion of the country's war production; but this class of service still comprises only 59 per cent of utilities' total sales, as compared with 56 per cent last year and 52 per cent six years ago, in 1937. Notwithstanding the complete stoppage of the manufacture of new household appliances and in spite of the various restrictions on the use of electricity in carrying out the National Conservation Program, the other uses of electricity have continued to grow at practically pre-war rates. Sales of electricity for household use show a gain of 2,000,000,000 kwhr over 1942 and small commercial service has grown by an equal amount.

This increased war and civilian load has been reflected in the largest gain in revenues in the history of electric supply, but none of this gain in revenue has reached the stockholder.

Tax Increases Cut Net Income

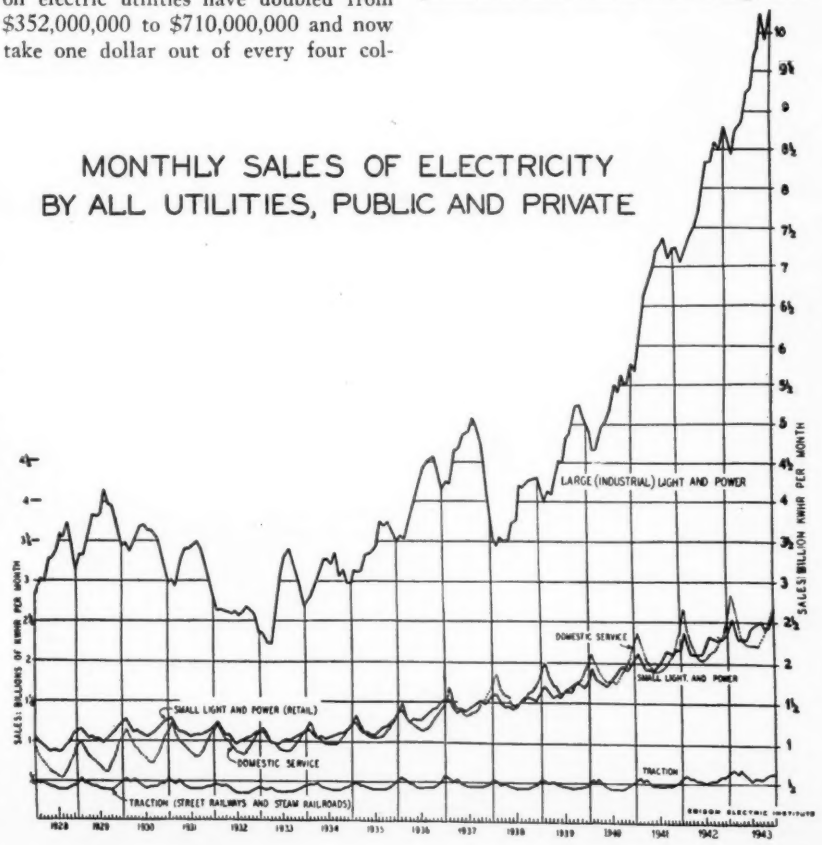
The consolidated income statement of the utility companies for 1943 will show a gain in gross revenues of $207,000,000 over 1942 to an estimated total of $2,816,000,000. According to financial reports published for the first 10 months of the year (with November and December estimated), increased operating expenses and depreciation absorbed $138,000,000 of this revenue gain, while state and local taxes showed only a slight change. As a result, net income after all charges, but before Federal taxes, is expected to show a gain of $78,000,000 or nearly 9 per cent over a year ago. Federal taxes, however, have increased by $80,000,000, so that net income is reduced to $495,000,000 as compared with $497,000,000 for the previous year.

The total of all taxes—Federal, State and local—is estimated at $710,000,000 for the year 1943. This represents an increase of $80,000,000 or 13 per cent, which comes on top of an increase of 21 per cent last year. Since 1939, the taxes on electric utilities have doubled from $352,000,000 to $710,000,000 and now take one dollar out of every four collected by the utility companies from their customers.

Generating Capacity Approximates 50,000,000 Kilowatts at the End of Year

Installed capacity in the public utility power houses increased during the year by more than 3,000,000 kw, bringing the total at the present time to about 49,500,000. During the past five years, generating capacity has grown by almost 11,000,000 kw, which increase alone is greater than the entire capacity of all the country's power houses at the beginning of the last war.

Since the nation's monthly war expenditures have shown little change dur-


MONTHLY SALES OF ELECTRICITY
BY ALL UTILITIES, PUBLIC AND PRIVATE
LARGE (INDUSTRIAL) LIGHT AND POWER
DOMESTIC SERVICE
SMALL LIGHT AND POWER
SMALL LIGHT AND POWER (RETAIL)
DOMESTIC SERVICE
TRACTION
TRACTION (STREET RAILWAYS AND STEAM RAILROADS)
SALES: BILLIONS OF KWHR PER MONTH
SALES: BILLION KWHR PER MONTH
EDISON ELECTRIC INSTITUTE
1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943

GENERATING CAPACITY BY STATES AND TYPE OF PRIME MOVER

(Kilowatt Generator Capacity of All Plants Contributing to the Public Supply)
Estimated for December 31, 1943.

	Total	Steam	Hydro	Internal Combustion
Total United States	49,442,400	34,265,000	14,112,100	1,065,300
Maine	340,100	87,200	249,600	3,300
New Hampshire	314,900	80,400	232,900	1,600
Vermont	179,500	13,700	165,100	700
Massachusetts	1,481,500	1,304,200	166,300	11,000
Rhode Island	284,700	278,400	3,300	3,000
Connecticut	829,200	735,500	88,600	5,100
Total New England	3,429,900	2,499,400	905,800	24,700
New York	6,009,800	4,814,900	1,168,600	26,300
New Jersey	1,578,200	1,566,700	7,600	3,900
Pennsylvania	3,440,700	3,005,800	424,700	10,200
Total Middle Atlantic	11,028,700	9,387,400	1,600,900	40,400
Ohio	3,097,200	3,068,300	12,100	16,800
Indiana	1,377,700	1,315,700	35,500	26,500
Illinois	3,069,900	2,994,400	52,200	23,300
Michigan	2,389,600	1,972,600	370,400	46,600
Wisconsin	1,284,000	982,000	280,400	21,600
Total East No.Central	11,218,400	10,333,000	750,600	134,800
Minnesota	797,800	594,100	156,400	47,300
Iowa	743,500	520,400	131,200	91,900
Missouri	863,300	649,200	158,400	55,700
North Dakota	101,200	90,400	0	10,800
South Dakota	92,100	55,100	3,300	33,700
Nebraska	417,100	220,300	142,300	54,500
Kansas	528,700	450,000	6,900	71,800
Total West No. Central	3,543,700	2,579,500	598,500	365,700
Delaware	38,900	33,200	0	5,700
Maryland	803,300	523,000	271,300	9,000
District of Columbia	408,000	405,000	3,000	0
Virginia	691,200	495,500	181,400	14,300
West Virginia	1,000,300	894,400	101,000	4,900
North Carolina	1,375,100	679,700	684,600	10,800
South Carolina	792,600	137,300	650,800	4,500
Georgia	666,700	321,400	343,000	2,300
Florida	465,200	413,400	12,700	39,100
Total South Atlantic	6,241,300	3,902,900	2,247,800	90,600
Kentucky	460,200	346,200	110,900	3,100
Tennessee	1,208,000	370,400	835,700	1,900
Alabama	1,343,200	379,300	959,300	4,600
Mississippi	94,200	79,300	0	14,900
Total East So.Central	3,105,600	1,175,200	1,905,900	24,500
Arkansas	183,100	98,300	67,000	17,800
Louisiana	553,000	506,400	0	46,600
Oklahoma	466,900	352,800	59,200	54,900
Texas	1,386,200	1,110,600	171,800	100,800
Total West So.Central	2,589,200	2,068,100	301,000	220,100
Montana	373,900	12,300	358,500	3,100
Idaho	270,600	700	266,100	3,800
Wyoming	89,500	34,200	49,700	5,600
Colorado	353,200	248,500	88,000	16,700
New Mexico	146,600	99,900	25,100	21,600
Arizona	676,700	92,300	540,800	43,600
Utah	168,900	66,200	92,200	10,500
Nevada	508,200	1,000	503,700	3,500
Total Mountain	2,587,600	555,100	1,924,100	108,400
Washington	1,718,300	203,900	1,512,400	2,000
Oregon	850,100	186,600	658,700	4,800
California	3,129,600	1,373,900	1,706,400	49,300
Total Pacific	5,698,000	1,764,400	3,877,500	56,100

CAPACITY AND GENERATION DATA (KILOWATTS)

(1942 final and 1943 preliminary)

BY TYPE OF PRIME MOVER

KILOWATTHOURS GENERATED

1943	Total	Steam	Hydro	Internal Combustion
New England	12,040,000,000	8,280,000,000	3,720,000,000	40,000,000
Middle Atlantic	50,880,000,000	40,930,000,000	9,880,000,000	70,000,000
East North Central	50,300,000,000	46,330,000,000	3,700,000,000	270,000,000
West North Central	11,630,000,000	7,920,000,000	3,010,000,000	700,000,000
South Atlantic	27,280,000,000	19,190,000,000	7,940,000,000	150,000,000
East South Central	15,100,000,000	4,810,000,000	10,260,000,000	30,000,000
West South Central	12,800,000,000	11,500,000,000	900,000,000	400,000,000
Mountain	12,900,000,000	1,600,000,000	11,140,000,000	160,000,000
Pacific	28,070,000,000	4,210,000,000	23,850,000,000	10,000,000
Total U S (1943)	221,000,000,000	144,770,000,000	74,400,000,000	1,830,000,000
Final 1942 figures	189,181,159,000	123,356,138,000	64,179,359,000	1,645,662,000
Increase (Kwhrs)	31,818,841,000	21,413,862,000	10,220,641,000	184,338,000
%	+16.8	+17.4	+15.9	+11.2

CAPACITY IN KILOWATTS

1943 estimated	49,442,400	34,265,000	14,112,100	1,065,300
1942 final	46,406,736	32,332,239	13,025,320	1,049,177
Net Increase	3,035,664	1,932,761	1,086,780	16,123
%	+6.5	+6.0	+8.3	+1.5

KILOWATTHOURS GENERATED PER KW OF CAPACITY

1943	4,611	4,348	5,483	1,731
1942	4,147	3,902	4,949	1,744

BY OWNERSHIP GROUPS

KILOWATTHOURS GENERATED (000's)

	Total	Electric Utilities	Municipal Plants	Governmental Plants	Other Plants
1943 Estimated	221,000,000	179,850,000	9,380,000	27,850,000	3,920,000
1942 Final	189,181,159	158,051,924	7,610,251	19,741,641	3,777,343
Net Increase	31,818,841	21,798,076	1,769,749	8,108,359	142,657
%	+16.8	+13.8	+23.3	+41.1	+3.8

CAPACITY IN KILOWATTS

1943 Estimated	49,442,400	39,136,400	3,428,900	5,330,800	1,546,300
1942 Final	46,406,736	37,441,750	3,330,770	4,084,074	1,550,142
Net Increase	3,035,664	1,694,650	98,130	1,246,726	- 3,842
%	+6.5	+4.5	+2.9	+30.5	- 0.2

ing the past nine months, it seems likely that the scale of America's gigantic industrial war effort has reached its climax and that the demand for electric power, even with the continuation of the most active field campaign, will be stabilized at approximately present levels. The installation of additional generating machinery is accordingly expected to taper off, with only 1,250,000 kw scheduled for 1944 and some 500,000 more in 1945.

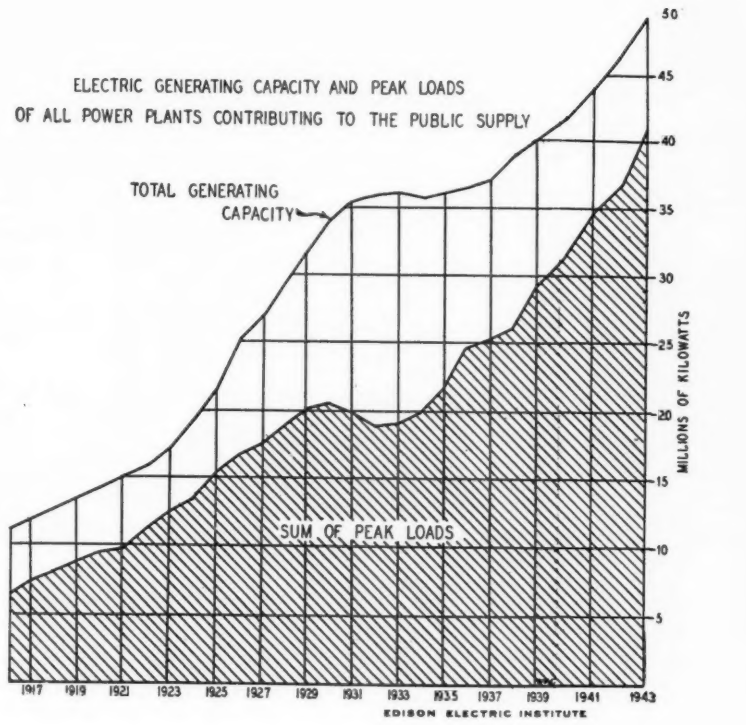
Construction Expenditures Off

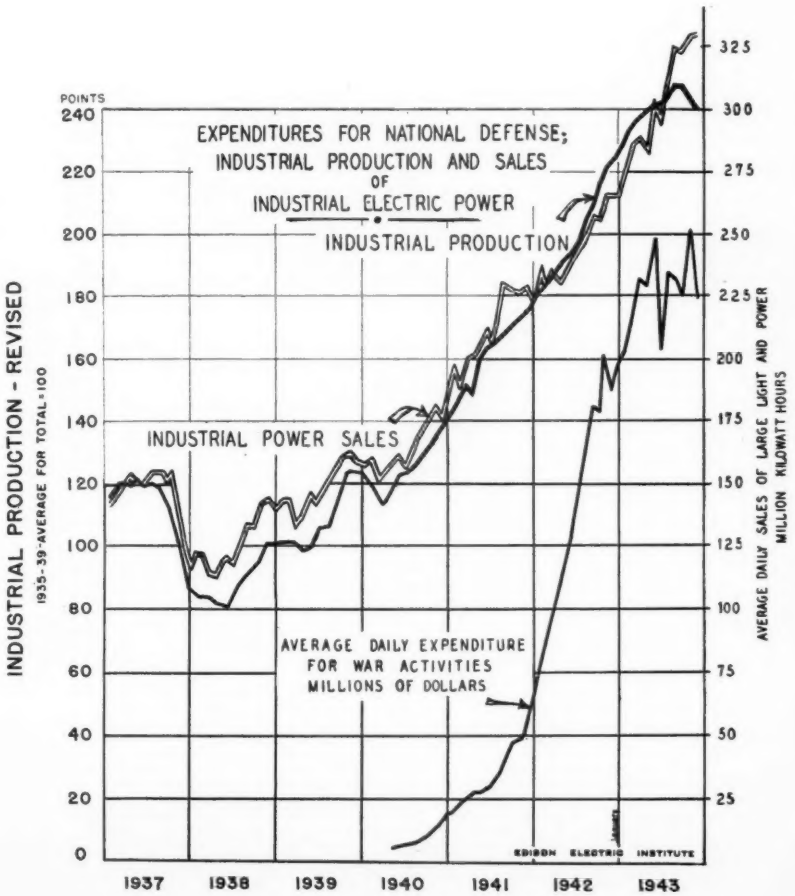
In 1943 the electric utility companies of the United States spent for new construction in round numbers, $265,000,000. This compares with a total of $456,000,000 in 1942 and a budget of $282,000,000 proposed for 1943 at this time last year. Construction expenditures for 1944, based upon budgets thus far announced, will approximate $225,000,000, or only slightly less than this year's actual construction. Much of this proposed expenditure is for distribution lines, a substantial part of which is destined to serve farms for increased food production.

Margin of Reserves Well Maintained in 1943

The sum of the peak loads at the generating stations for December, 1943, for all plants contributing to the public supply, is estimated to have been 41,000,000 kw. This is 4,300,000 kw, or 12 per cent, above the figure for last year and is 8,500,000 kw under the total installed capacity of the generating stations. In December of last year the corresponding margin of capacity above demand was 9,700,000 kw. During the most active year of the country's history and with the war production reaching its peak, the margin of the utilities reserves has thus been drawn upon by only 1,200,000 kw, or less than one-eighth of the total reserves.

For the group of larger (or so-called Class I utilities) reporting to the Institute, the sum of the non-coincident peak loads for December is estimated to have been 37,000,000 kw, as compared with 32,942,000 in December of 1942. This figure of 37,000,000 for these larger systems is about 3 per cent below the estimate made by them a year ago and is nearly 6,000,000 kw below the forecast of 42,732,000 made by the Federal Power Commission in July, 1941, at the height of its "power shortage" campaign.





KILOWATTHOUR GENERATION AND SALES, 1942 AND 1943

(1943 Estimate)

SOURCE AND DISPOSAL OF ENERGY

	1943	1942	%
Generation (Net Kwhrs)			
By Steam Plants	144,770,000,000	123,356,138,000	+17.4
By Hydro Plants	74,400,000,000	64,179,359,000	+15.9
By Internal Combustion Plants	1,830,000,000	1,645,662,000	+11.2
TOTAL GENERATION	221,000,000,000	189,181,159,000	+16.8
Add --- Net Imports	1,540,000,000	1,447,900,000	+ 6.4
Less -- Company Use	2,920,000,000	2,417,100,000	+20.8
Less -- Energy used by Producer	8,020,000,000	3,193,659,000	+151.1
NET ENERGY FOR DISTRIBUTION	211,600,000,000	184,018,300,000	+15.0
Losses and Unaccounted for	25,600,000,000	24,610,596,000	+ 4.0
SALES TO ULTIMATE CUSTOMERS	186,000,000,000	159,407,704,000	+16.7

CLASSIFICATION OF SALES

Number of Customers (12-31-43)			
Residential or Domestic	26,817,700	26,620,456	+ 0.7
Rural (Distinct Rural Rates)	1,182,300	1,095,512	-
Commercial and Industrial			
Small Light & Power	4,133,000	4,219,457	-
Large Light & Power	152,300	149,928	-
Street and Highway Lighting	24,793	25,216	-
Other Public Authorities	83,591	98,465	-
Railways and Railroads	198	211	-
Interdepartmental	1,118	1,195	-
Total Ultimate Customers	32,395,000	32,210,440	+ 0.6
KILOWATTHOUR SALES			
Residential or Domestic	28,775,000,000	26,936,773,000	+ 6.8
Rural (Distinct Rural Rates)	2,875,000,000	2,889,853,000	- 0.5
Commercial and Industrial			
Small Light & Power	29,100,000,000	27,233,420,000	+ 6.9
Large Light & Power	106,050,000,000	88,378,197,000	+20.0
Street and Highway Lighting	2,150,000,000	2,061,159,000	+ 4.3
Other Public Authorities	8,900,000,000	4,206,069,000	+111.6
Railways and Railroads	7,250,000,000	6,627,994,000	+ 9.4
Interdepartmental	900,000,000	1,074,239,000	-16.2
TOTAL KILOWATTHOUR SALES	186,000,000,000	159,407,704,000	+16.7
REVENUE			
Residential or Domestic	$1,047,000,000	$ 990,185,300	+ 5.7
Rural (Distinct Rural Rates)	80,000,000	75,026,700	+ 6.6
Commercial and Industrial			
Small Light & Power	780,000,000	767,278,900	+ 1.7
Large Light & Power	953,000,000	828,317,800	+15.1
Street and Highway Lighting	77,000,000	75,660,300	+ 1.8
Other Public Authorities	96,000,000	60,206,200	+59.5
Railways and Railroads	58,000,000	53,632,200	+ 8.1
Interdepartmental	5,000,000	5,535,600	- 9.7
TOTAL REVENUE	$3,096,000,000	$2,855,843,000	+ 8.4

NUMBER OF CUSTOMERS AT END OF 1943

(By Class of Service—Dec. 31, 1943, estimate)

	Total	Residential or Domestic	Rural (Distinct Rural Rates)	Commercial and Industrial Small	Commercial and Industrial Large	Street and Highway Ltg	Other Public Authorities	RW & RR	Interdepartmental
Total U S	32,395,000	26,817,700	1,182,300	4,133,000	152,300	24,793	83,591	198	1,118
Maine	232,800	195,000	800	30,500	3,550	474	2,471	2	3
New Hamp.	151,800	131,000	290	17,800	830	224	1,744	1	1
Vermont	92,900	75,000	3,400	11,600	1,960	221	717	1	1
Mass	1,332,580	1,160,000	1,100	165,000	5,310	614	336	10	210
Rhode Isl.	214,920	190,000	400	23,500	900	41	79	0	0
Conn	544,500	476,000	3,100	60,600	4,550	80	168	0	2
New Eng.	2,569,500	2,227,000	9,000	309,000	17,100	1,654	5,515	14	217
New York	4,087,900	3,440,000	45,900	580,000	7,450	1,596	12,937	17	0
New Jersey	1,328,800	1,140,000	100	184,000	2,760	683	1,248	5	4
Penn	2,570,000	2,175,000	71,000	304,000	16,990	1,819	1,144	21	26
Mid.Atl.	7,986,700	6,755,000	117,000	1,068,000	27,200	4,098	15,329	43	30
Ohio	2,007,500	1,705,000	75,000	206,000	11,740	984	8,739	16	21
Indiana	960,300	776,000	65,600	105,000	8,100	1,028	4,528	8	36
Illinois	2,195,100	1,867,000	73,900	238,000	12,200	1,073	2,905	12	10
Michigan	1,545,800	1,360,000	15,200	166,000	2,300	915	1,355	5	25
Wisconsin	836,100	652,000	75,300	105,000	1,660	1,567	539	4	30
E.N.C.	7,544,800	6,360,000	305,000	820,000	36,000	5,567	18,066	45	122
Minnesota	676,500	554,000	19,000	101,000	780	754	962	4	0
Iowa	614,400	478,400	37,200	94,000	2,600	835	1,297	4	64
Missouri	865,800	712,300	26,000	123,000	2,350	499	1,627	2	22
N.Dakota	96,240	73,600	500	21,500	40	373	223	0	4
S.Dakota	99,840	76,600	1,200	21,200	140	318	372	0	10
Nebraska	284,720	232,000	9,100	41,200	180	446	1,771	3	20
Kansas	427,300	342,100	23,700	58,100	1,410	655	1,276	0	59
W.N.C.	3,064,800	2,469,000	116,700	460,000	7,500	3,880	7,528	13	179
Delaware	72,560	62,000	1,000	8,900	410	63	184	1	2
Md.& D of C	661,940	546,000	27,400	86,500	1,360	235	433	7	5
Virginia	495,800	420,000	9,200	62,500	1,450	273	2,364	2	11
W.Virginia	335,200	274,000	20,800	37,500	920	239	1,698	4	39
N.Carolina	521,600	423,000	24,500	69,000	3,500	416	1,138	0	46
S.Carolina	239,100	197,500	6,000	34,000	1,220	239	141	0	0
Georgia	450,360	386,500	0	62,500	730	445	184	1	0
Florida	437,340	365,000	200	68,100	1,510	262	2,197	0	71
S.Atl.	3,213,900	2,674,000	89,100	429,000	11,100	2,172	8,339	15	174
Kentucky	422,100	349,000	18,900	46,600	4,400	335	2,863	1	1
Tennessee	453,500	387,000	9,400	52,500	1,100	281	3,200	3	16
Alabama	364,200	266,000	58,000	37,400	1,680	297	810	0	13
Mississippi	196,900	135,000	30,200	29,500	1,320	270	610	0	0
E.S.C.	1,436,700	1,137,000	116,500	166,000	8,500	1,183	7,483	4	30
Arkansas	215,800	160,000	18,000	33,000	2,800	273	1,726	1	0
Louisiana	352,800	300,000	0	48,200	3,000	270	1,326	1	3
Oklahoma	385,600	310,000	14,600	52,600	6,100	359	1,937	4	0
Texas	1,184,900	955,000	61,000	158,200	8,100	1,078	1,519	3	0
W.S.C.	2,139,100	1,725,000	93,600	292,000	20,000	1,980	6,508	9	3
Montana	119,490	96,000	0	21,200	1,880	239	79	2	90
Idaho	133,616	108,000	4,500	20,400	470	168	70	0	2
Wyoming	51,620	43,000	400	7,100	980	67	73	0	0
Colorado	279,100	221,500	12,400	37,500	6,900	204	584	0	12
New Mexico	73,850	61,000	0	12,500	90	52	208	0	0
Arizona	115,030	98,000	500	16,100	180	61	175	11	13
Utah	161,850	144,000	100	17,200	30	246	263	10	0
Nevada	31,650	26,500	0	5,000	100	41	9	0	0
Mountain	966,200	798,000	17,900	137,000	10,630	1,078	1,461	14	117
Washington	591,500	502,000	20,000	62,000	5,200	714	1,544	17	25
Oregon	327,800	275,000	8,700	40,000	2,400	248	1,446	3	3
California	2,554,000	1,895,700	288,800	350,000	6,670	2,219	10,372	21	218
Pacific	3,473,300	2,672,700	317,500	452,000	14,270	3,181	13,362	41	246

11-15-43

Output 221,000,000,000 Kilowatthours—Up 17 Per Cent

Output of electricity in 1943 by all agencies contributing to the public supply totaled approximately 221,000,000,000 kwhr, an increase of 32,000,000,000, or 17 per cent, over the production in 1942. This increase compares with a gain of 20,700,000,000 kwhr, or 12 per cent, in 1942 over 1941 and with 23,185,000,000, or 16 per cent, in 1941 over 1940.

In the four years from September, 1939, when the Germans invaded Poland, to the present time, the total output of electricity has grown from 126,000,000,000 kwhr per year to 221,000,000,000, or by 75 per cent, while generating capacity has grown by only 25 per cent. This has been due to the higher "load factors," resulting from longer hours and additional shifts in industry, and from the increase in the size and number of chemical and metallurgical plants where furnaces are operated continuously. These factors have largely been responsible for the ability of the electric power plants to carry the greatly increased war load and reasonably maintain their margins of reserves of generating capacity.

In addition to the production of electricity by public utility plants, approximately 50,000,000,000 kwhr were generated by industrial plants for their own use, bringing the total of all electricity generated for all purposes in the United States in 1943 to 271,000,000,000. Canada and the United States in 1943 with a combined production of 312,000,000,000 kwhr produced about one-half of the entire world production of electricity.

Sales of Electricity Increase

The most striking feature of the entire war expansion has been the development of the metallurgical load; that is, the manufacture of aluminum, magnesium, electric steel and ferro-alloys. This type of load now constitutes the largest single classification of electric use and it seems probable that, in 1943, these processes consumed approximately 35,000,000,000 kwhr out of the grand total of 271,000,000,000 generated by all agencies—utility and industrial.

Except for rural service, where the use of power was reduced by diminished requirements for irrigation pumping, all classes of service showed large rates of growth during the year. In spite of the addition of only 200,000 new customers and the impossibility of procuring new electric appliances, the use of electricity in the home increased by nearly 2,000,000,000 kwhr, or 7 per cent, to an estimated total of 28, 775,000,000. The annual use of current by the average residential consumer approximated 1070 kwhr at the end of 1943, as compared with 1022 the year before—an increase of 48, or nearly 5 per cent. At the same time, in sharp contrast to the rising cost of living and of doing business, the average unit price of electricity in the home continued to decline and is now about 3.64 cents per kwhr—an all-time low.

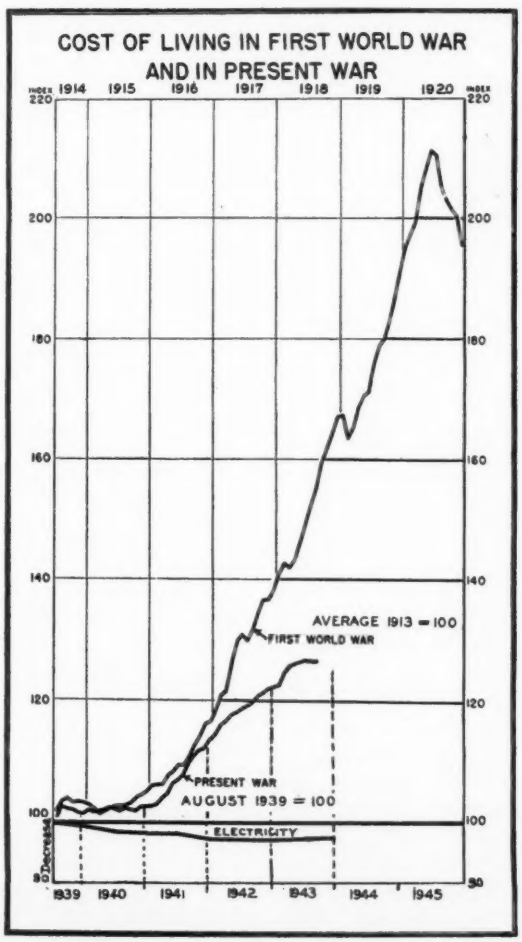
TABLE I—COST OF LIVING IN U.S.A.

Classification	*On Aug. 15, 1939 Index Number**	*On Sept. 15, 1943 Index Number**	*% Change, 4 Years*
Food	93.5	137.4	47% Increase
Clothing	100.3	132.5	32% Increase
Rent	104.3	108.0	4% Increase
Fuel and ice	97.7	111.2	14% Increase
House furnishings	100.6	126.3	26% Increase
Miscellaneous	100.4	117.0	17% Increase
All Items	98.6	123.9	26% Increase
ELECTRICITY (25 Kwhr)	96.6	94.3	2% Decrease
ELECTRICITY (100 Kwhr)	97.3	96.1	1% Decrease

* "Index Numbers" are percentages of the 1935-1939 average.

Compared with September, 1939, when hostilities in Europe began, the increased cost of the individual items of the cost of living, as computed from figures published by the U. S. Department of Labor, is shown by Table I, above.

While the other components of the cost of living have been showing inflationary rises, the average rates for electricity have continued the downward trend which has persisted from the earliest days of the electric industry.



The Significance of the Term "Net Property" as Applied to Public Utilities

By S. Ferguson

President, The Hartford Electric Light Company

Presented before a group of representatives of New York banks, Dec. 17, 1943

THIS address, together with the topic selected, is based upon the assumption that all of you gentlemen are interested in the preservation of our American economic system of free enterprise and are not desirous of seeing it supplanted by any variety of collectivist or socialistic system; and more concretely that you are particularly interested in preserving the values of utility securities which you may hold as investments or which you may have been instrumental in distributing to others rather than to see these values waste away through the concerted effort now being made to bring about the end of private ownership of the electric industry as the first step in the larger program —which many hope will include banks and insurance companies as the next step.

I have often been called an alarmist, and even our own industry is not fully alive to the present danger nor realizes how far along the road toward nationalization we have already traveled.

It is this progress which I wish to point out and to indicate one particular place where unwittingly you are lending aid and comfort to the enemy through your recognition of the term "net property."

The efforts of those who are trying to socialize the industry as well as my endeavors to arouse resistance are based on the same two premises, namely:

1—That irreparable damage can be done through the creation of large reserves which must be deducted in the determination of values for the issuance of securities or for a rate base.

2—In general, laws are the result of crystallized public opinion rather than public opinion following from laws.

The opposition has won the first round in insisting on the establishment of larger and larger reserves but is legally at a present disadvantage in that the Courts have invariably rejected claims for depreciation deduction based on theoretical considerations and insist that factual depreciation *only* shall be recognized. The present campaign of the opposition is directed toward an eventual revision of the law in favor of amortization of public utility capital through the creation of sufficiently powerful public opinion. This they are now doing through a widespread campaign wherein they ring the changes on three fallacious (but apparently logical) catch phrases. These are:

(a) For the consideration of regulatory bodies and accountants they claim that "depreciation charges" made to expense must apear as "depreciation" on the balance sheet. With this concept they hope to obtain the support of present laws to as great an extent as possible.

(b) For distributors of securities and investing institutions they emphasize the item of "net property." In the last few years this term is beginning to appear with great frequency in financial analyses as a measure of permissible earnings.

(c) For the man who pays the bills for electricity they are setting up the claim that if customers' money is used to build property it should not carry any fixed charges for the benefit of the investor. It is only human nature that this should have a very considerable appeal and it is being used to the limit as a justification in equity rather than in law for the deduction.

Disregarding for the moment the first and last of these catch phrases suppose we consider that of "net property."

On any balance sheet "net property" is understood to be the item of fixed capital less the depreciation reserve. In utility accounting these items are entered on the opposite sides of the balance sheet, namely:

FIXED CAPITAL on the asset side and DEPRECIATION RESERVE on the liability side—in spite of the desires of the Federal Power Commission that industrial practice should be followed.

For competitive industrial concerns this item appears on the asset side of the books as the fixed capital reduced by the amount of depreciation which has been charged to expense and (under present-day tax laws) as determined by the depreciation allowance which the Treasury is willing to grant.

In earlier years, before the tax credit became too valuable to waste, the criterion of depreciation was usually the amount of plant write down that seemed to be justified by the earnings of the year. The objective of the maximum possible write down accompanied by the corresponding debt reduction is of course highly desirable in a competitive industrial concern as in such a case future volume of business as determined by the selling price of the product is governed only by the profit obtainable over operating costs with a minimum of fixed charges to be covered. Hence the ability for increased earnings is promoted to the extent of the greater plant write down. A concern with plant written down to one dollar is in an enviable position as to future earnings and can undersell present or prospective competitors. In other words, it is a conservative practice —whether or not the process should more accurately be described as one of amortization rather than depreciation.

There is a tendency to transpose this concept of conservatism into utility accounting without remembering that the books are prima facie evidence of value. And that it is on value alone that permissible utility earnings are predicated.

It is true that so far the Courts have refused to consider the reserve as factual depreciation in any determination of the rate base but none the less, in case after case this is pressed by the Federal Power Commission and with increasing success in the lower courts. In the Natural Gas Pipeline Case they failed, in the Supreme Court, by only the narrowest of margins at best and many interpret the decision as validating their claim even in that case. Here and elsewhere I am using the Federal Power Commission as synonymous of those who wish to destroy private enterprise in the Industry although I realize that some members of the Commission have not this specific objective in mind and are only carried along by specious arguments.

Later in my discussion of depreciation I will indicate why I do not believe the Federal Power Commission rests its case entirely on the hope that the Supreme Court will reverse itself and accept the depreciation reserve as a measure of factual depreciation to be deducted in the determination of the rate base. They are building up public opinion to favor legislation which will require the amortization of plant cost out of the rates permitted. Their whole theory of depreciation accounting is not a method of accounting for depreciation (as it is defined by the Supreme Court) but is rather a method of providing for the systematic amortization of capital, and it is in connection with this buildup that they are encouraging the concept of "net property" as a measure of value. They disguise the fact that since the depreciation reserve is not, and cannot be, a measure of factual depreciation—the method of obtaining the "net property" figure is simply an arbitrary writedown of value brought about by the process of arbitrary amortization.

You are inclined to think of extra and non-disclosed assets behind your securities if the plant is well written-down; or that a fair return on even this low figure will give ample coverage. This may be true at the moment, but you must not lose sight of the result of the process carried to its logical conclusion.

The effect in past years has been concealed due to the rapid growth of the industry so that property additions have been in excess of property deductions but as growth slows down the reverse becomes true and "net property" automatically becomes less and less, so that the permissible earnings coverage becomes a declining amount.

The operation of the "net property" concept is well illustrated in a Federal Power Commission report released only last month (THE FINANCIAL RECORD OF THE ELECTRIC UTILITY INDUSTRY 1937-1942). This report summarizes the five year progress of the industry both as to the degree of its increased usefulness and the corresponding degree of permissible increased reward accorded.

The performance is given as:

Ability for service—that is Kw capacity
17% increase

Customers served—that is number
15% increase

Service rendered—that is Kwhrs delivered
52% increase

The basis for maximum permissible reward for the increased service rendered is indicated as:

Rate base—that is "Net Plant"
1½% increase

The confiscatory nature of the program is even more apparent when we appraise the results of the last year of this period. In this year, owing to the fact that the reserves show greater growth than plant, the figure of "net property" has been decreased by $98,000,000, so that earnings on the 1941 "net property," which were available for servicing outstanding securities, became in 1942 excessive and illegal even though the outstanding securities had not changed; and the 10 per cent increased service rendered in 1942 has not only received no recognition by increased reward but has actually suffered a reduction in compensation.

This was justified on the ground that increase in the size of the reserve represented the return *of* capital to investors. I quote:

"—the sum of utility operating income plus accruals for depreciation, representing the total amount returnable to investors either as principal or income—"

Think of that! "Returnable to investors as principal" when the depreciation reserve is untouchable except for covering property retirements. By all means I advise you to obtain a copy of this Federal Power Report and see what is being done with the net property concept. Then I think you will see reason in my urgent request to eliminate it completely from all your statistical compilations and no longer to give it the sanction that follows from your use.

I do not, of course, mean that you should fail to give due consideration to "original cost less the depreciation reserve" in any evaluation which you may make of securities—you must face the worst even when hoping for the best. What I am trying to say is that the factor "net property" is not only a meaningless catch phrase promulgated with an ulterior motive but that it is in fact worse than meaningless for your purpose by itself. Any ratio obtained where "net property" is a factor is liable to be dangerously misleading and for the following reason:

"Net property" may be nearly as large as gross property if the reserve is small whereas it is much smaller than the gross where the reserve is large. If your ratio of debt to "net property" or your permissible earnings coverage looks to be a satisfactory figure you are liable to be unjustifiably complacent whereas you should be satisfied only if this ratio is obtained by the use of a "net property" figure in which the reserve is large. In such a case the enemy has done his worst. On the other hand, if the same numerical ratio is obtained by the use of a "net property" figure wherein the reserve is small or inadequate then the figure is no sign whatever of security as in such a case the enemy guns are just coming into action and the rapid increase in the reserve which will be forced on the company means a decrease in the "net property" figure and an approaching deterioration of the ratio in which you put your trust. Pending such increase in the reserve they deduct the so-called "reserve requirement"—a figure larger than that appearing on the books and therefore one of which you have no knowledge.

For this reason as well as to avoid the promotion of a destructively seductive catch phrase I advocate that your statistical information shall give both "cost" and "reserve size" but in separate columns; and that you use the information with judgment rather than depend on a clerk to give you a ratio figure which may be very deceptive. Remember that any quotient is as much dependent on the size of the denominator as on the numerator; and to this truism I would add that scrutiny must be given to the makeup as well as to the size of the denominator.

"Net property" where the reserve is unduly small must inevitably be a snare and a delusion if we assume that the view of the Federal Power Commission eventually will prevail; and dependence upon it as a protective factor is justified only when the reserve is large. Consequently I repeat—give yourself the benefit of both the cost item and the reserve item rather than to depend upon the resultant, derived from their combination. It is the combination without knowledge of each factor which is both deceptive and destructive.

What I have said so far is predicated on my statement that the depreciation reserve does not and cannot be a measure of factual depreciation. In consequence I must discuss the subject of depreciation and show the fallacies of the FPC methods as applied to depreciation accounting no matter how logical and desirable they may be a system of amortization accounting.

But first, as a preface, I would suggest that you obtain and read a most amazing speech delivered only last January to the REA convention in St. Louis which will enlighten you as to the ideas of the Chair-

man of the FPC relative to the desirability of substituting collectivism in place of fundamental American business principles.

In view of the existing FPC jurisdiction as interpreted by the Courts, Mr. Olds has perhaps the greatest power of anyone in the country to affect the destiny of the electric and gas industries of the nation. Certainly his public statement extolling the idea of an eventual cooperative state must not be disregarded.

It is not appropriate to speculate on what may be the eventual economic philosophy of the nation, but it can be positively stated that whatever change may take place should be brought about after full, frank and honest discussion and debate rather than by subterfuge and indirection.

It is possible that at some future date the American people may agree with Mr. Olds' endorsement of the statement that "A REAL DEMOCRACY MUST BE A DEMOCRACY CARRYING ON ITS OWN BUSINESS" and that they may join in Mr. Olds' condemnation of the existing principles of "PRIVATE ENTERPRISE" and the "PROFIT MOTIVE" and that they may subscribe to Mr. Olds' appeal that the creation of a cooperative state is "NOT ONLY THE NOBLEST BUT ALSO THE MOST ADVENTUROUS OF UNDERTAKINGS" but meanwhile there exists no justification for producing such collectivist status in a very large proportion of all telephone, gas and electric properties, costing many billions of dollars and in daily use —by the indirect means of the method of depreciation accounting as advocated by the Federal Power Commission.

That this fear is not exaggerated is indicated by the Federal Power Commission claim in a case now pending before the Supreme Court (Federal Power Commission vs. Hope Natural Gas Company) that 41 per cent of the investment (original cost) recognized by it in the rate base should be deducted as depreciation and depletion in the determination of the "net property" on which the Company is entitled to earn a return.

The report of the National Association of Railroad and Utilities Commissioners' Depreciation Committee made to the Convention of commissioners in Chicago on September 14, 1943, disregards completely any ideas on the subject other than those theories advocated by the Federal Power Commission in the proceedings recently conducted against electric and natural gas companies.

The adoption of these theories, if supported by the Courts, would go far toward converting the industry from one conducted upon the American principles of free enterprise to one conducted on a basis of nationalization or collectivism.

While wholly acquitting the Federal Power Commission of having had such an objective in mind years ago at the time of the adoption of its present system of accounts I have had good reason to believe that other influential men working behind the scenes did visualize such an eventual result. Over the years they have succeeded in selling this method of depreciation accounting largely with the aid of the fallacious "consistency" catch phrase (to the effect that depreciation charges in the expense accounts must also be recognized as depreciation in the balance sheet). By the use of the single word they cover the two radically different meanings of "depreciation" in its accounting sense and "depreciation" in its economic sense.

Nothing can bring about collectivism in the electric industry more surely than to do as recommended by the Federal Power Commission—in effect to credit the customer each year with the purchase of a portion of the property serving him to the extent of 10 per cent or more of the bills which he pays for service, while the payments go into a non-distributable account so that the original owner receives no return of capital.

This may be a crude way of summarizing the Federal Power Commission theory on depreciation accounting but it is exactly how it works out except that for the present the customer does not take legal title to the property he purchases or any responsibility and thus the process is concealed. But if the original provider of these facilities is required to relinquish the earning power of his investment to the extent of these payments —and the customer making the payments is in the future relieved from providing these earnings in the rates he pays —the result is the same whether title passes or not.

The working of this process may be easily visualized when the cost of a great hydroelectric development is amortized by customer payments in any relatively short period of years, and then for the next thousand years the customer is entitled to the use of these properties without rentals or fixed charges just as though he were in fact the owner.

This may be considered as a special case but to a greater or lesser degree the same condition exists when the consumer is for any reason given the use of facilities, which he is in fact using daily, without there being a charge in the rate he pays to cover the item of a fair return on the facilities, even though the effect may be concealed under a clever theory disguised as "depreciation."

Rates should in all cases include an item for the fair return on the total property in use regardless of the source of funds with which the facilities were built. The equitable distribution of this return as between customer and investor is an entirely separate question which should be considered on its merits without an effort to so fog the issue as to promote the attainment of that collectivism which follows from the above-described transfer of the base of earning power.

There are many factors which have not as yet caused any depreciation but for which provision must be made in advance as they are liable to occur in the future to a greater or lesser extent; but such advance payment by no concept of logic or equity can be properly considered as being equivalent to the purchase of property actually in daily use and wholly undepreciated from such specific causes.

Under the influence of their "service life" theory and the pressure for larger and larger reserves there will come a time when the companies will earn so little that that little will be an insufficient coverage for commercial loans and the necessary backing of equity money. The companies will thus be unable to finance the plant expansions needed by the public and when this time comes the Government will then be the only available source of money. When the Government takes over the furnishing of funds the conversion from preliminary collectivism to nationalization will have taken place. This process has not been apparent during the past years of rapid growth but is now becoming evident in the many cases where the annual increase in the reserve exceeds the annual increase in plant with consequent reduction in the so-called "net property."

If only we could know in advance—instead of being restricted to knowledge in retrospect—as to what are to be these specific service lives, the uniform collection of recoupment cost would be nothing but the simplest possible example in arithmetic. It is the simplicity connected with this "IF" which has led to such ef-

forts to determine that which is undeterminable; and in lieu of such determination has led to acceptance as a substitute such estimates and averages as can be obtained from the history of the industry (modified by judgment). This is of course a poor susbtitute for the use of the factual data as shown in the company's accounting records.

Nevertheless honest and indefatigable efforts have been made to make use of a service life method for solving the problem. The trouble is that any frank recognition of the fallacies into which its advocates are led is sidestepped, avoided or circumvented by the extremely limited definition of depreciation in the prescribed books of account and elsewhere rather than to seek a method which is free from such fallacies. These fallacies together with the confusion of the two different senses in which the word "depreciation" is used lead to the inequitable and illogical deduction of the reserve in the determination of the rate base.

Two alternative reasons are given as justification for this deduction of the Depreciation reserve in the determination of the rate base or in a reorganization case. These are:

1. That the reserve is assumed to be a measure of the depreciation which in fact exists and therefore should be deducted to determine the value of the property devoted to public service.

2. That the payments collected from customers for depreciation over and above operating costs and fair return constitute a reimbursement of the investment originally made to provide service and consequently it is the "net investment" only on which a reasonable return should be figured.

Inasmuch as both of these reasons can be shown to be fallacious, the real reason probably lies in the effort to combat the equally fallacious claim at times pressed by part of the utility industry (apparently supported by the Supreme Court in the New York Telephone Case) that the customer has no claim to any equity in the earnings to be derived from the assets of the reserve.

It is submitted, however, that two wrongs do not make a right; and that the deduction of the reserve is not necessary to protect the customer's equity when there exists a perfectly logical method of securing such protection without insisting on a method which is at the same time contrary to fact and inequitable to the investor in the majority of cases.

The First claim—*"that the reserve represents depreciation that has occurred"*—has been alleged to have a logical appearance in that the Company has claimed the amounts contained therein as "depreciation expense" in its operating figures of previous years; and its denial as depreciation in the balance sheet sounds like an inconsistent contradiction. This, however, is not so, as the Company's charge to expense is not claimed as representing the depreciation which in fact occurred in the accounting period—but only the amount set aside to meet the demands of depreciation when it may occur.

Inasmuch as the Industry and the N.A.R.U.C. are agreed that depreciation in its entirety, is not progressively a function of time, it is obvious that the reserve, if adequate for its intended purpose, must be larger than enough to cover the amount of depreciation which has in fact taken place from such causes as are progressively a function of time; including any existing obsolescence and inadequacy; and it can be identical to the existing factual depreciation only in such cases as it is far less than an adequate sum, since many contingencies should be provided for in advance of their incidence. Consequently it follows that the reserve cannot be invariably deducted on the ground that it reasonably represents the depreciation which has in fact taken place.

The advocates of deduction have developed and written into accounting rules certain ingenious definitions and a theory of a pro-rate of estimated "service life" to support their contention. The definitions include:

First—the elimination of any admission of depreciation from causes against which the company is protected by insurance.

This enables them to avoid the absurd claim that depreciation caused by fire is progressively a function of time. But it violates the Supreme Court dictum that depreciation embraces *all** causes which result in the ultimate withdrawal of property. Such elimination is wholly unnecessary as the amounts received from the Insurance Company represent salvage and should be so treated after a fire has caused a piece of property to deteriorate —just as would be done in any other case of property withdrawal. It is absurd to say that the mere carrying of fire insurance prevents factual depreciation from taking place in the event of fire.

It is a curious but interesting fact that this particular illogical provision in the Federal Power Commission's prescribed system of accounts which eliminates from consideration such property as is covered by Insurance offers a means by which Utility Companies may protect themselves from the forced amortization proposed under the caption of depreciation.

New York state has already legalized the writing of Property-Life Insurance and other states will undoubtedly follow suit as soon as the demand for same arises. When a Company thus insures its entire property the reserve will be on the books of the Insurance Company and there can be no question as to the premium as an expense.

It would be unfortunate if the industry should be forced to adopt this method as no Insurance Company could do business on the basis of 100 per cent loss ratio now enjoyed by the public.

Second—Their definition, as stated is to include only such cases as are subject to a reasonably accurate estimate of their effect on service life.

This is again in direct violation of the Supreme Court dictum which embraces "all causes"* and certainly the users of utility service must be expected to pay the cost of service including that of property lost by reason of flood, earthquake, obsolescence and other causes of unpredictable incidence.

Coupled with and corollary to these definitions is the concept of "service life" and the uniform amortization of the investment in property during its "service life."

There is no obligation, legal or moral, which requires that an investor shall be required to have his investment amortized over the life of the property in which he has invested; nor is amortization and depreciation the same thing. It may be that public policy shall at some time require such amortization but this is a question for discussion on its merits rather than to attempt to bring it about under the camouflage of depreciation accounting.

Under the "service life" theory, the best possible estimate of useful life of property is to be made and such amounts charged annually to expense and credited to the depreciation reserve as will equal the investment at the estimated

* Lindheimer vs Illinois Bell Telephone Company Case (292 U. S. 151).

end of its service life. The annual charges shall be made on a straight line or sinking fund basis—the former being strongly advocated—and in either case the amount accumulated in the reserve is alleged to represent the depreciation which has in fact taken place at any given time.

Only at the end of the service life when these two methods both give 100 per cent depreciation, do they agree and yet the advocates of service life naively allege that whichever is used gives the actual depreciation in any prior time.

The absurdity of such concept is also obvious in view of the Supreme Court's definition that depreciation covers all causes for ultimate retirements since it means that depreciation from flood, earthquake, obsolescence or inadequacy is progressively a function of time, and makes no distinction between the preparation to meet a future depreciation liability and such depreciation as may actually have taken place with the passage of time.

It is argued that obsolescence does not take place suddenly, but gradually from the start, and therefore depreciation from this cause should be considered as a function of time. Such claim leads to the absurd conclusion that retirement because of obsolescence is more likely to occur to one of two absolutely identical turbines if that one happens to be five or 10 years old, than to the other which is brand new. Of course if the progress of the art is such that because of higher efficiency, greater reliability or other reasons, replacement is desirable the reason applies just as well to the one as to the other.

A careful study on causes of property withdrawal over a 10-year period on three billion dollars of property shows 80 per cent of all retirements to be from obsolescence or other causes not due to the passage of time. And yet on the service life theory one of the above turbines must be valued for reorganization financing or in the rate as being one-third depreciated when factually, except for a little wear and tear, they are of exactly the same value.†

It is claimed by service life advocates that with the data available from all over the country, the industry can use average lives just as well as can the Life Insurance Companies; but in their case they do not claim predictability for life but only that by over-charging a long life they are compensated for losses on a short life. The equivalent to insurance results might be accomplished if the whole industry were to be nationalized to take advantage of averages but certainly equity to an individual investor or group of investors cannot be obtained from such use of averages as applied to differing conditions.

The second claim—*that the reserve represents reimbursements made by the customer*—falls down by reason of the prohibition against any of the assets of the reserve being given to the investor.

It is true that legal title rests with the Company and in liquidation these assets belong to the investor but the problem is not of liquidation but of a going regulated concern and even if it were one of liquidation the assets invested in plant for public service would do the investor no good.

Regulation following the direction of the Supreme Court†† properly requires that the reserve shall be held intact for the purpose which justified its collection namely "integrity of investment for service rendered" and that the assets shall under no circumstances be distributed;††† and if the assets are temporarily invested in new plant instead of being held liquid to cover withdrawals that the investor shall restore same when required for their intended purpose.

The fallacy of any general rule of deduction based on the reimbursement theory is easily illustrated. The interest of the security holder in the maintenance of property value ordinarily would seem to be covered by the substitution of a new property value for that eliminated by deduction but this is true only in the special (and in the past, usual) case where the increase in property values equals or exceeds the depreciation charges. The confiscatory feature of this thesis becomes apparent when the depreciation accrual exceeds the addition of new property value. For many companies this has occurred in 1942 and 1943 and will be so in 1944.

The Financial Record of the Electric Utility Industry, 1937-1942, released by the Federal Power Commission November, 1943, shows that the industry as a whole from 1941 to 1942 increased its total plant only $111,000,000 while its depreciation reserve increased $209,000,000 leaving an excess of $98,000,000 of the depreciation reserve which could not be reinvested in utility property.

The fact that the investor may, indirectly through the company, have legal title to the reserve does not make it a return *of* capital since it is of no benefit whatever to him as he may not not touch it so long as the public requires service; and for all we know that is forever.

The obvious alternative to the fallacious depreciation program of the Federal Power Commission is simply to take a realistic view of the reserve, namely—that it exists for the purpose of meeting contingent liabilities of uncertain magnitudes and uncertain incidences; and that it is created by orderly annual charges to expense rather than to wait for the very irregular incidence of factual depreciation. Such orderly creation of necessity involves collection from customers in advance of the need for the money; hence it is equitable that the company as custodian of the funds should allow the customers interest accruals out of the earnings of the fund at rates corresponding to the otherwise necessary cost of money or if temporarily invested in securities at rates corresponding to the net returns therefrom.

I have taken so much time in discussing the "net property" catch phrase and the corollary fallacies of the Federal Power Commission depreciation accounting, that I will have to leave the two other catch phrases with only casual mention.

The consistency catch phrase arises from the treatment of the word "depreciation," a noun, denoting a loss of an initial attribute (such as value) as synonomous with the word "depreciation," an adjective descriptive of a particular type of accounting. It makes the erroneous assumption that any charge to expense to provide for depreciation must represent depreciation which in fact has taken place and hence must be recognized in the balance sheet. The fallacy is so obvious that it is most amazing to see it accepted even by well known auditing firms. The balance sheet entry should be recognized for what it is, namely, the amount of preparation which has been made by the company to meet a future liability of uncertain incidence and magnitude. To look on the balance sheet entry as factual depreciation makes it an untruthful disclosure of condition

(*Continued on page* 18)

† See report Edison Electric Institute Sub-Committee on Depreciation—Appendix A.

†† Lindheimer vs Illinois Bell Telephone Company Case (292 U. S. 151).

††† Distribution of the assets of the depreciation reserve is prohibited in several states and the District of Columbia by law, and in most others by commission rules and also whenever mandatory use of the Federal Power Commission classification of accounts is required.

The Record Tells the Story of Puget Power

By Frank McLaughlin

President, Puget Sound Power & Light Company

A talk before the Chehalis Chamber of Commerce, Oct. 25, 1943

I AM always glad to come to Chehalis because there is a friendliness and an air of stability about you folks that is impressive. Yours is not a "boom" town—neither are you apostles of "boondoggling." I appreciate your asking me to be with you today to talk about Puget Power.

As you all appreciate, Puget Power has had its share of heartaches and headaches—it has had its dark moments and its bright spots. Its record contains tragic chapters and glorious ones, but happy am I indeed to be able to say to you today that I believe in every way Puget Power is now in a stronger position than it has ever been in its history. Puget Power is today a vital, aggressive force—helping to win the war—fighting to preserve the American way of life—and planning for the better days that surely lie ahead. While we hear much of lights having gone out all over the world during these dark days, in the sense of accomplishment of the job it has to do, the lights of Puget Power are burning brighter than ever.

For Puget Power, the last ten years have truly been an epic struggle of "blood, sweat and tears" and—during much of this time—the Company has seemingly been in the "9" hole behind the "8" ball. It is comforting, to say the least, that it is no longer easy prey for graveyard whistlers. The progress which has been made astounds and confounds the skeptics who had it all figured out that Puget's day was done and its remains were about ready to be turned over to Public Power for a bloody program of vivisection at pauper prices.

While the past ten months have recorded notable accomplishments for the Company, yet this did not happen by black magic or overnight performance. It has been due to the backing of an ideal by vigorous effort over a long period of years—the objective being to give our customers the best service at the lowest cost, and at the same time to measure up to our responsibilities to investors and employees.

Puget Power has been crucified by the unfair tactics of Government, and it has been vilified by demagogues and agitators. It has been made a political football. It has been slugged and it has been the victim of many a foul blow, but it never has gone down for the count. The Company's record is one of overcoming tremendous difficulties and coming to the top the hard way. It has had to live down the mistakes it has made. It has had to wash its dirty linen. Progress has not been achieved by hanging onto somebody's coattails, nor has it been carried up from the well of the depression to the top floor of maximum usefulness by an automatic elevator. It has made the grade by hard climbing. It has had no silver spoon in its mouth. It has had no taxpayers' subsidies. It has had no exemptions from stringent regulations. It has had no "Santa Claus" in high places.

Putting it baldly, the Company's record is one of doing the things which the "P.P.P.s" (Public Power Politicians) said could not be done—so let's just go over briefly some of the things they labeled impossible and see what the answers are:

1. *The charge that the Company would never be able to survive the devastating effects of the depression*

From January 1, 1933, to December 31, 1942, Puget Power retired over $16,000,000 of debt (principally Bonds) and made construction expenditures of more than $20,000,000—a total of $36,000,000 spent for debt reduction and construction—all of which came from earnings except $3,250,000 which came from the sale of Seattle Street Railway Bonds. Puget Power's operating revenues for the twelve months ending September 30, 1943, were $24,000,000—almost double what they were for 1933, while net earnings were six times more—both earnings figures being the highest in history. So that's the answer to that one.

2. *The charge that the Company would not do a good job for its customers*

Since 1933, living costs have mounted and electricity costs have dropped a lot. Food costs are up 48 per cent; rent 42 per cent; clothing 29 per cent, while the average cost of electricity per domestic and farm customer served by the Company has gone down over 40 per cent, and the average rate for such service is now appreciably less than 2c per kilowatthour. Yes, Puget Power has done a good job for its customers in spite of the fact that its taxes are today five times greater than they were in 1930, payroll has doubled, and material costs have substantially increased since 1933.

Because taxes bulk so large in our picture, I am going to talk for a moment about this problem that we all worry about. Puget Power's taxes have increased tremendously since 1930. The increase in taxes is over twice the annual dividend requirements on the former $6 Preferred stock, and amounts to nearly one-half of the total annual payroll.

Public Power politicians say that the Company does not pay any taxes; they claim that it is the consumer who pays the bill. We don't quarrel with that—it is perfectly obvious. Taxes must be paid from the income which the Company receives, which income in turn must come from the customer. But this fact I want to make clear: if we were tax exempt, there would be over $4,000,000 annually—20c out of each and every dollar of gross income—which would not have to be included in our customer's charges and we would still have the same net earnings. This question of who pays the taxes would disappear as a vital issue in the public versus private power battle, if Public Power would agree to be taxed on the same basis and to the same extent as Private Power. I will leave it to you to say why Public Power dodges such a seemingly reasonable agreement.

Government operation through subsidies, and the setting up of an unfair yardstick, on such a basis, to measure the performance of private enterprise, constitute a snare and a delusion. If taxes are not paid through the electric bills they must be paid through some other means, and the taxpayer, in the final analysis, must pay the freight.

The area served by the Company is

highly electrified and rates are low. This is further evidenced by the fact that Puget Power's average rate for home and farm electricity is about half the national average, while the annual per customer use of such service is about double the average for the United States. So that's the answer to the charge that the Company is not doing a good job for its customers.

3. The charge that the Company would not survive piecemeal condemnation

The record reveals that the Public Utility Districts, through a program of piecemeal condemnation, have attempted to bleed the Company to death by cutting off an arm here and a leg there. They have tried to obtain the property at rummage sale prices at the expense of, and at the sacrifice of the investment of the stockholders. Well, the fair-minded people sitting on the juries have decided that they would not be parties to wholesale robbery and, in the condemnation cases covering the Company's properties, the jury awards were $10,000,000 more, or double what the PUD's said the properties they sought to condemn, were worth. The Company has not lost any property as a result of condemnation, and the system is still intact. Puget Power today serves 230,591 customers, an increase of 70,131, or almost 44 per cent over 1933. So that's the answer to that one.

4. The charge that the Company would not be able to refinance

Not only did Public Power politicians loudly proclaim from the housetops that the Company would not be able to refinance, but some of them attempted to get the United States Securities and Exchange Commission to disapprove the refinancing program. Well, in April of this year, the Company did refinance, thereby saving approximately $800,000 a year in interest and amortization charges and extending its bond maturity dates from 1949 and 1950 to 1972. So that's the answer to that one.

5. The charge that the Company's preferred stock would not be worth anything, and that the Company would never pay a dividend

September 13, 1943, was a really historic and most significant day in Puget Power's affairs—for, on that day, the ownership and control of the Company passed from an eastern holding company to a group of approximately 15,000 stockholders. About 9,400, or 63 per cent, of these stockholders—people from all walks of life, your friends and neighbors—live right here in the State of Washington. All relationships between the holding company, Engineers Public Service Company, and Puget Power have been terminated. This should end for all time the politicians' hullabaloo about domination of the Company's affairs by an eastern holding company, and of robbing the people of the great State of Washington to fill the pockets of the "wolves of Wall Street."

Puget Power has become in a broad sense a home people's power enterprise—of the people, by the people, and for the people. This is public ownership, honest-to-goodness American style, with business management under government regulation. This is public ownership in keeping with Jeffersonian principles, as contrasted with the so-called subsidized and socialistic public ownership, where the bureaucrat and the politician dominate and control. Yes, we are on our own in every respect. Under such a setup, the conduct of the Company's affairs assumes the dignity and obligation of a public trust which carries with it a high degree of responsibility. This is a challenge which we willingly accept and which we will successfully meet. Puget Power represents a people's capitalism, and therein lies its strength.

In 1932 the Company's Preferred stock was quoted at $6 per share; the Prior Preference was down to $10, and the Company's Bonds were quoted at 40c and 50c on the dollar. Today all of the Company's old Bonds have been paid off—the new Bonds are selling at a premium—and the Prior Preference stock, even with the one-quarter additional share included, is selling near par. The new Common stock is selling on a basis which is equivalent to $86 per share on the $6 Preferred and it has been up to an equivalent of $96 per share. Generally speaking, the reaction downward has been in conformity with the trends of the general market. My own opinion is that the new Common stock would be selling at a higher price today if it wasn't for the activities of those who want the market price of the stock kept down so as to make it easier for the property to be taken over by Public Power at a pauper's price. The Prior Preference stock is on a dividend basis; and on November first a dividend of 60c per share is to be paid on the new Common stock—an equivalent of $4.80 per share on the $6 Preferred. So that's the answer to that one.

I might add that the earnings on this stock are currently running in excess of $2 per share per annum, and the Company's current asset position is strong.

REASONS FOR IMPROVED SHOWING

Now, the doing of the specific things which those who wanted Puget Power liquidated said could not be done is in my opinion primarily due to three basic reasons:

The Public

First—the Company has had faith in the fairness of the people and this faith has been justified. The Company's objectives have been wholesome and it has endeavored to take the people into its confidence. Cards have been laid on the table; the Company has frankly told the people its story; there has been no subterfuge—no political chicanery. It has been asked to be judged on the merits of its performance, and this is still the case.

Public Power politicians, on the other hand, have tried to create the impression that all the people want Public Power. That they themselves do not believe this to be a fact is indicated in the way they have tried, by using all sorts of tactics, to keep the people from voting on Initiative 12. But the State Senate and the Supreme Court said the people should have a right to vote on this measure, and evidence that the people themselves want to vote is shown by the fact that over three times as many valid signatures as were necessary were obtained to put Referendum 25 (Initiative 12) on the ballot at the 1944 election.

In the handling of Initiative 12, Public Power plainly showed it did not have confidence in the people's vote. It is apparently afraid of the people's vote! We are not. If the people in the territory served by this Company were strong Public Power, they would have kicked us out of the picture long before this. If the people were pro-Public Power, I do not believe we would have had the jury awards in the PUD condemnation cases, which awards were approximately double what the PUDs said the properties were worth. We would not have been able to obtain throughout the territory served, so many new municipal and county franchises. There would not have been so many signatures to Referendum 25, and I might go on with further evidence to show that the people have not swallowed "hook, line and sinker" the "Santa Claus" bait of the Public Power politicians. As a matter of fact, a proof that

the people want Private Power and not Public Power is contained in a survey made last fall by Dan E. Clark II & Associates. The results of this survey show that the people of the State of Washington are *2 to 1* for Private Power.

Employees

Now, the second reason for the Company's improved showing is its employees. The men and women who make up the personnel of Puget Power have able minds, stout hearts and skilled hands. They have the wide experience and extensive knowledge that are essential to successful operation in the various fields of service that the Company renders. They have been efficient in the providing of these services and aggressive in the sale of them. I hope you will pardon me if I seem to brag, but I am very proud of my associates in Puget Power. They have brains and guts; they have been loyal to the cause of free enterprise. They have carried on with a "never-say-die" spirit—with a "can do" resolve and a "know how" effort. Puget Power employees are giving their best in order that the Company's responsibilities to its customers and stockholders may be lived up to. They have been real fighters in one of the most "rip-snorting" shows of our time. By splendid performance in their work and by participation in the many civilian war activities, the employees of Puget Power are contributing much to the successful prosecution of the war. Their special skill, accumulated knowledge and combined experience will be valuable in the Company's post-war development program. You cannot get efficient public service with greenhorns and henchmen of the power politicians. In order to "cut the mustard" these days you've got to have a gang that knows what it is all about! We have such a gang—and again I say I am proud of them.

Stockholders

Now getting down to the third reason for the Company's improved position. Not the least of these factors, by any means, is our stockholders, who risked their money when the risk was great and who have shouldered a heavy burden.

Puget Power renders a public service. In order for the Company to measure up to its obligations to its stockholders, it must do a good job for its customers. It must have the good will of the people of the territory it serves, and of the public authorities. It must have an efficient organization to see to it that the customer is economically and adequately served. The stockholders of the Company have been very cooperative and patient during the dark and troublous days when we had to—like most folks—hustle like the dickens to make ends meet. They had faith in the future of the electric business when they invested their hard-earned savings in the Company's property. They have had faith that their fellow men would see to it that they got a square deal and that their property would not be taken away from them without their having a say about it, or at pawnbroker's prices. Without the investment of these stockholders, and their sticking to the ship through thick and thin, the Company would not be doing the job that it is today, and the State of Washington would not be where it is today.

Even Vice-President Wallace, who many believed was not strong for private enterprise, has an article in the *Saturday Evening Post* entitled: "We Must Save Free Enterprise." In the course of this article, the Vice-President of the United States properly gives credit where credit is due when he says:

"The opening of the West, the rapid and diversified growth of industry; the dramatic development of our farms and cities, and the creation of our enormous reservoirs of productive capital are tributes to the doctrine of free private enterprise.

"* * * Without the use of the corporate form, the emergence of the railroad, the telegraph and telephone, the automobile and the radio, the large-scale distribution of electric power, to say the least, would have been delayed."

I leave it to you what the picture in the State of Washington would have been if Puget Power had not pioneered in electrical development. Puget Power was first to sense the possibilities of this State's marvelous water power resources. Private Power was enterprising at the turn of the century and I have the feeling that this same spirit of enterprise dominates it today.

I have always felt that the people the Company is privileged to serve want the folks who invested their hard-earned savings in the Company's property to be paid a fair wage for the use of their money, because the efficient use of that money has resulted in the upbuilding of the State and brought consumer benefits. Right here I want to emphasize that it is only through a mutually satisfactory partnership—where labor and capital receive a fair wage for their contribution to society, and for benefits brought to the consumer, that free enterprise and the American Way of Life can be preserved. And, if we do not preserve the American Way of Life, God help us! If we lose our economic freedom, then our political freedom will also be lost.

On all side we get evidence to the effect that the people are now aware of the fact that the existence of the private enterprise system is being threatened; and they seem to want a turn-about face on the matter of Federal domination and bureaucratic control. They are blaming Government for what to them is too much centralization of power in the hands of bureaucrats. They are feeling the effects of what they believe to be a bungling of rationing and they are irritated by what looks to them like a yoke of unnecessary regimentation. The realization is being driven home to the people that Government cannot function efficiently in a business way; and, after their unpleasant personal experiences with the Government in its many restrictive activities which touch every phase of their lives, they apparently are reacting against a Government monopoly of anything—including electric power. This does not mean that the people are not patriotic. This means that the people do not want to lose at home what our boys are fighting abroad to keep. They are 100 per cent Americans and, as such, they want the American Way of Life preserved. They do not want to be the victims of socialized regimentation or political caprice. There is also evidence of a growing fear that Government monopoly is as dangerous as private monopoly. Along this line the *Tacoma Times* recently said editorially:

"There properly arises the question, if a few efficient privately-owned power companies might not react to the benefit of the consumer by providing competition for publicly-owned power. Though Tacoma, without competition, is said to have the lowest light and power rates in the country, it is conceivable that with all competition eliminated, a public power monopoly might be as injurious to the consumer as unrestrained private enterprise. This also might be true concerning the character of service."

Labor is also beginning to appreciate where it would end up under a socialistic order. The following quotation from the *Bellingham Labor News*, of July 23, hits the nail right on the head:

"Due to the war, nearly one-fifth of

the productive capacity of this country is now owned outright by the government. In plain words, a fifth of industry is already socialized. When the war is over this era of socialism will either expand or be gradually replaced by private ownership. If it is not replaced by private ownership, the American workman will eventually lose his freedom. He will work for a single, monopolistic employer—the government. A gang of bureaucrats will demand political allegiance as the price of a job. Organized labor is now recognizing these truths. That is why it is becoming more and more opposed to Public Ownership of private enterprise."

You have observed that the editorial comment just quoted points out the after-the-war problem which will result from the Federal Government's large ownership of industrial plant facilities, now used for war purposes, and the menace to private enterprise which exists because of this situation.

To me the best guarantee that private enterprise will successfully meet the post-war challenge is the magnificent way it has met the unprecedented demands of war. It will measure up to post-war requirements, if Government does not hamstring it.

Perhaps the best answer to the after-the-war place of private enterprise is to be found in the Honorable Lloyd George's statement to Eric Johnston, President of the United States Chamber of Commerce, on the occasion of the latter's recent trip to England when the former Prime Minister of Great Britain said:

"You Americans can look around and see on all sides what individual enterprise has contributed to your economy and you will want more of it, not less of it, after the war."

It is my opinion that the private enterprise system will endure because it is only through such a system that property rights can be preserved, individual rights and opportunities can be maintained, and human values attain the maximum of recognition and the most appreciation. Private enterprise means liberty, freedom and progress, hope and individual opportunity. Private enterprise makes men captains of their souls—and in no other way can men be free. Therefore, in fighting to preserve free enterprise, I feel that right and justice are on our side and that the merits of our case are being recognized because we not only can best serve the people in their material needs, but we, at the same time, can foster their individual hopes and ambitions. Our battle is much bigger than our own battle for Puget Power. What we are fighting for is the same thing the armed services are fighting for. Our boys on the fighting fronts throughout the world are fighting to preserve the American Way of Life. They are not fighting for socialism or any other "ism" but Americanism! If we are going to let the parlor pinks and social planners socialize industry in America, why in God's name are we fighting the Nazis, Fascists and Japs?

In view of the attempts being made to sabotage the American Way of Life, it seems to me that it would be well for all of us to heed the words of that great British statesman, Winston Churchill, when he said:

"We must beware of trying to build a society in which nobody counts for anything except a politician or an official—a society where enterprise gains no reward and thrift no privileges."

The manpower, the skill, the experience and resources of Puget Power have been completely mobilized for the war effort and victory at the earliest possible moment. Puget Power has also put its house in order so that it can be of the greatest service in helping to win the war and the further upbuilding of the territory it serves after the war. It approaches the post-war period with confidence and with a very sincere desire to coperate with all our people and all our institutions so that the maximum possibilities of our City and our State, as to better living and successful enterprise, be realized.

With Puget Power, it is a case of pooling the money and talents of a lot of people for mutual benefit in the rendering of a valuable public service. We are working as partners with you in the building of an ever greater State of Washington—which, it can be truly said, has a future bright with promise.

Wisconsin Public Service Corp. Employees Win Army Industrial Safety Flag

Wisconsin Public Service employees found their jobs to be closer to the war effort than they had expected a few days earlier when in a short ceremony at Wausau, Green Bay and Marinette recently Major C. S. Melotte, Provost Marshall, and Captain F. M. Wright, Chief of the Industrial Safety Branch of District Two of the Army's Sixth Service Command (Wisconsin and upper Michigan) presented them with an Army Industrial Safety Flag.

The flag was received for the employees' group by a committee of 26, each with over 20 years of service without a disabling accident. Six hundred eighty-eight years of safe workmanship were represented on the committee. The flag in this picture is being held by a group of power department employees who represented their fellow departmental employees at the presentation at Green Bay. Jules Allen, at the right of the flag, headed the group with a 26-year no lost time safety record.

The sponsoring committee in the state included the Wisconsin Industrial Commission, the Wisconsin Council of Safety and the Wisconsin Manufacturers' Association. A flag similar to the one awarded to Wisconsin Public Service goes to the firm with the best safety record during the first six months of 1943 in each of the six industries in the state. Public Service finished the contest period with a low frequency rate of 3.92 (accidents per 1,000,000 hours worked).

Post-War Man-Power Problems

Placement of Employees Returning from Military Service

By Morris S. Viteles

Director of Personnel Research and Training, Philadelphia Electric Company and Professor of Psychology, University of Pennsylvania

Presented before Employee Activities Committee Meeting, Southeastern Electric Exchange, Atlanta, Ga., Nov. 5, 1943

Post-War Man-Power Problems—The National Picture

ONLY a few years ago we were facing in the United States what seemed to be an almost insuperable task—that of transferring 10 million men from industry and business into the armed services and reshuffling workers in industry to provide for the material needs of these forces. The task of unscrambling the units which have been created to wage the war, without damage to the national economy and welfare, may prove to be even more difficult than that of putting it together.

Such re-organization means not merely the replacement in industry of men who have been in the armed forces, but a reshuffling of what may amount to as many as 25 or 30 million jobs. This figure may seem large, but it is borne out by the facts. In 1940 there were 30 million industrial, i.e., non-war workers; approximately nine million agricultural workers; six million self-employed and over seven million unemployed workers. There were fewer than one million men in the armed forces and only approximately two million war workers. Today, we have close to 10 million in the armed forces; 20 million war workers, with the number of employees in non-war industries being reduced to approximately 19 million. Considering these figures you will agree that a reshuffling of approximately 30 million jobs probably does not represent an over-estimate of the size of the man-power problem which we will face as the war comes to a close.

Industry's Obligations under the Selective Training and Service Act

In this reassignment of workers American industry has been given one primary objective by legal enactment—that of returning to civilian employment those men who left jobs to enter the armed services.

The Selective Training and Service Act of 1940 specifically provides that any person who, upon entering the armed forces, leaves a position with a private employer shall be restored to such position or to one of like seniority, status, and pay, following his discharge from military service, unless the employer's circumstances have so changed as to make it impossible or unreasonable, providing also that the ex-service man (or woman) makes application for re-employment within 40 days and is still qualified to perform the duties of the former position.

At first glance, the reference to "circumstances" and ability to perform the duties of the job appear to be broad escape clauses, but it is commonly agreed that there is every intention to make good the return of the pre-war jobs to veterans promised by Congress. The Selective Training and Service Act itself provides that private employers who fail or refuse to comply with its provisions may be compelled to do so by the Federal District Courts, which can also order compensation "for any loss of wages or benefits" suffered by the ex-serviceman who is refused employment.

The re-employment section of the Act has already met the test of informal negotiations, and has been supported in a clear-cut legal decision in a case involving the replacement of an Army veteran in face of opposition of fellow-workers. The Selective Service System has established a Reemployment Division, to help safeguard the rights of veterans to pre-war jobs. Prior to his discharge, each man receives a letter from the Selective Service informing him of his re-employment rights and of the steps he must take to regain his former job. In local communities, Re-employment Committeemen, attached to Selective Service draft boards, are already functioning as the personal representatives of veterans until such time as they are satisfactorily re-established in civilian life.[1]

Additional support for veteran re-employment has been achieved, on a national scale, through the establishment of a National Clearing House Committee which mobilizes the resources of the United States Employment Service, The Vocational Rehabilitation Division of the Federal Security Agency, or other government agencies, and of all civic agencies interested in the re-employment of veterans. In other words, extensive machinery has already been set in motion to make good the Congressional promise of jobs for ex-servicemen. At the present moment, the responsibility of providing jobs for veterans appears to represent a firm obligation of American industry.

Planning on a National Scale

It is obvious that the problem of returning 10 million or even nine million or seven million men from the armed services to civilian jobs cannot be solved without reference to the total manpower situation in the postwar era. Moreover, as suggested in a review of the situation published in the July, 1943, issue of *Factory Management and Maintenance,* it is probable that "how well the whole national re-employment job will be done may depend primarily on how smoothly, how quickly, and with what initial accuracy these veterans can be fitted into the post-war pattern.

With respect to the replacement and reshuffling of workers, both in accordance with the requirements of the Selective Service Act, and in terms of the general post-war manpower picture, there has been considerable planning on a national and even global scale. There is a Gray plan, and a Studebaker plan, and numerous other plans looking to national, state and local action to facilitate both replacement of discharged military personnel and the reshuffling of the employment situation in general. The National Labor Resources Board, War Manpower Commission, the Committee on Economic Development and various other public and private agencies have written plans ready, designed to facilitate the task of providing jobs for the

[1] M. P. Baer, "When the Boys Come Marching Home," Occupations, XXII, Oct., 1943, p. 12.

56,000,000 Americans who will need them if post-war prosperity is to be achieved, and of redistributing the labor supply among these jobs. Such large-scale planning is necessary but, in my opinion, the effectiveness with which ex-servicemen are replaced and suitably employed on jobs in industry is not *primarily* a function of post-war planning on a national scale, but will depend in the final analysis on the extent to which each plant prepares for the re-employment and adjustment of the men returning to work on an individual and understanding basis.

National or global planning represents only a *way of thinking;* effective accomplishment in the replacement will be the outcome of *action* on a smaller scale and on a more individualized pattern. How ineffectual (and even harmful) large scale thinking without small scale action can be is illustrated in an experience with a gas outage in an apartment house in which I lived during an extended stay in Russia some eight or nine years ago. One morning there was no gas for cooking or heating water. Inquiry developed the fact that the outage had affected the entire apartment house, in which there were living some 200 families, many with small children. Further inquiry brought the information that the service, due to a frozen outside valve, might be restored in a day. Actually, the restoration of service, involving only the thawing out of this valve, was not effected for three days. In talking to the "president" of managing committee of the apartment house, I made reference to the inconvenience and possible illness suffered by 200 families because of this delay in making a minor repair. The immediate answer to this implied criticism of the inefficiency of the government-owned gas corporation, was the statement "We in Russia are engaged in building a socialistic state. We have big things to do. Of what moment is the suffering of 200 families in comparison with the big aims and big work of an era of socialistic construction in Russia?"

Planning at the Company Level

At all times, here, as in U.S.S.R., there is real danger that in planning on a big scale we neglect the essence of the situation, namely, the little common man for whom the plan is intended. In the placement of employees returning from military service, this danger can be eliminated, or at least reduced, if the problem is viewed not primarily as a national problem but as one to be solved by the Company which the man left to enter the military services. In other words, if each Company does its own planning for finding appropriate jobs for its veterans, the basic manpower problem of the post war era can largely be solved without the extended intervention of complex organizations and meddlesome bureaucracies which frequently serve to confuse rather than to resolve problems. The solution of the basic problem represents also an important step towards the management of the total post war manpower situation.

It is apparent that two basic principles are involved in this approach to the placement of employees returning from military service. The *first* calls for planning by *individual companies* on what Sloan has called a "sea-level" in contrast to the "stratosphere" level of planning;[2] the second focuses attention upon the immediate objective of providing for the occupational readjustment of the *individual man* (or woman) returning from the military services. From the latter point of view it is probably well to start with what Ernie Pyle, in a recent book, has called a "worm's eye view" of the military forces, which consists of "tired and dirty soldiers who are alive and don't want to die;—of shocked, silent men wandering back down the hill from battle." The company plan (and the national plan, too) must be written and administered to meet the needs of these men; to insure to each a useful and productive role in the company organization.

What Men Returning from Military Service Will Expect

In general, from the viewpoint of placement in the company organization, the men returning from the military service can be divided into three groups:

(1) The first includes men who want to and are physically qualified to go back to their old jobs. This group will include both men who have not acquired anything in the way of new skills in the military services and others who, in spite of the acquisition of new skills, will prefer their old job. According to one report, approximately one-half of the men discharged from military service to date have requested placement in their old jobs.[2] This is perhaps an encouraging figure, particularly in view of a widespread belief that most men who have gone into the Army or Navy have received advanced technical training and will return with the expectation of immediately being placed into jobs on which they can capitalize on this training and experience. However, it is, of course, difficult to estimate with any accuracy how large a proportion of returning veterans will fall into this group.

(2) The second group will consist of men who have received technical training or whose war experiences have been such as to create dissatisfaction with the job held before entering the military service and an expectation of placement in a better or more responsible job. This group will include the office boy who has been piloting a four-motor bomber; the boiler room helper who has been fire control man first class in the Navy; the mechanic's helper who has acquired the rating of technical sergeant and has been responsible for the repair of bomb sights; the engineering cadet who has become a commissioned officer and a radar expert. Many of these will be dissatisfied with their jobs which they left and expect that the company will at least make an effort to provide jobs on which they can use their newly acquired skills and experience. An effort to provide such jobs for these men is desirable not only in the interests of the men involved, but also in the interests of the company which, to provide efficiency and morale should use to the maximum the skills and experience of men returning from the military service.

(3) The third group includes the physically disabled. The first trickle of disabled veterans is already returning to the community. This trickle will develop into a considerable stream of handicapped individuals as the war continues. Observations made by placement agencies reveal that there still exists fairly widespread objection to the employment of disabled individuals without regard for their true capabilities.[3] Carl Gray, the originator of the Gray plan for post war re-employment tells of a soldier discharged by reason of injury sustained in a military airplane crash who, in reporting on his efforts to get a job, blurted out, "I have just been over to the X factory and they were going to hire me until they heard I had a slight heart condition. The employment manager said 'If you are not good enough for the Army, we can't use you'."[4] Perhaps this does not reflect the attitude of the management in general

[2] A. P. Sloan, Jr., "We Must Plan Now to Create Post-War Jobs," Phila. *Inquirer,* August 15, 1943.
[3] George Lavos, "Unfounded Objections to Hiring the Handicapped." J. Consult. Psych., July-Aug., 1943, pp. 195-6.
[4] Carl Gray, "The Gray Plan for Post-War Re-employment, Occupations, XXII." p. 9.

today. It does indicate what can happen if the placement of physically disabled employees returning from military services is influenced by personal aversions and erroneous thinking with respect to the employment of the physically disabled. Employers must share the responsibility for the placement of the handicapped on the basis of a truer understanding of the capabilities of such individuals.

A Three-Step Company Program

In general, three steps can be taken immediately by any company that is interested in preparing in advance for the placement of employees returning from military service:

1. The first or preliminary step is to survey the company's occupational picture in order to spot those jobs which can most easily be made available to him returning from the services. This step should not be postponed until the war ends; it can be started today, continued tomorrow, and carried on as a dynamic activity throughout the pernod of postwar readjustment. In passing, it may be noted that plant running and replacement tables, originally designed to facilitate the transfer of men from industry to the military services, can be used to advantage in selecting available jobs; in planning training programs; in picking jobs for re-engineering in line with placement programs, and those in which physically handicapped can be used.

2. The second step is to organize a plan for the occupational counseling of men returning from military service. The basic requirement for actual placement is a real appraisal of the qualifications and characteristics of each such man in relation to the requirements of each of the available jobs. Plans are already being made for such counselling by the Army, Navy, Selective Service System and other government agencies concerned with the return of the veterans to civilian life. It is suggested, however, that here again the job can best be done on a plant or company basis. Under this condition, specific attention can be given to the peculiar needs and special circumstances of the company and to information obtained during the man's spell of work with the company.

In general, occupational counselling for veterans will involve a systematic inventory of the assets, liabilities, interests and preferences of the man. Its objective will be to find the job in the organization in which the man can use his aptitudes, skills and interests to the best advantage. As indicated earlier, in many cases this would be the job held prior to the man's entry into the military service. In an appreciable number of cases, the need for a change of job will appear and the outcome of the counselling will be the selection of the job which best meets the man's needs and enables him to make the maximum contribution to company operation. It should be noted that in contrast to the situation usually existing in the placement of personnel in industry, the emphasis will be not on the selection of the man for the job, but on finding that job which most adequately exploits the characteristics and interests of the man.

In such personnel or vocational counselling, the usual personnel techniques of the interview, possibly the psychological test, achievement trade tests, will be used. It may be that specialists in the field of vocational guidance and vocational rehabilitation may be called upon to help set up and administer the occupational counselling program and such a program of training as may be needed to supplement occupational counselling.

Special Aids for the Placement of Men Returning from Military Service

It is not possible, in the course of this brief presentation to outline in detail the steps to be taken in organizing and administering this occupational counselling program. It is, however, possible to refer briefly to one or two newly developed special aids which can be used to advantage in this counselling process. Striking examples of such material are to be found in a volume entitled, *Special Aids for Placing Army Personnel in Civilian Jobs*[5] and in a parallel volume covering the placement of Navy personnel in civilian jobs developed by the Division of Occupational Analysis and Manning Tables of the War Manpower Commission.[6] The information given in these publicaions is designed *first,* to facilitate the maximum utilization in civilian occupations of an individual's occupational experience secured while in the Army and Navy, and secondly, to promote the effective utilization of the abilities and skills of those discharged with physical handicaps.

The volume on Army personnel, which is typical, gives the title of the Army occupation; a job summary specifying the duties of the occupation in the Army together with a statement of the knowledge and skilled qualificaions required by the Army for classification in this category; the titles of civilian occupation most closely related to the Army occupation; a brief statement for each of the related civilian occupations of the training which the individual would need to supplement Army experience in and to be qualified for placement in that civilian occupation; and an estimate of the physical demands and physical requirements of each of the Army jobs and related civilian occupations.

For example, reference to the volume on *Special Aids for Placing Army Personnel in Civilian Jobs,* shows that with brief training in installation of electrical equipment a man rated as bombsight mechanic by the Army could be used as an electrical meter installer or an electric conduit installer. With additional training in the construction and maintenance of the specific precision instruments or recording devices, he can be placed in the electric indsutry as an electric meter tester, a meter repairman, or an instrument repairman.

At first glance there would seem to be little relation between the duties and qualificaions of a Navy Fire Controlman (Chief or First Class) and civilian occupations. Actually, the manual on *Special Aids for Placing Navy Personnel in Civilian Jobs* indicates that a man who has been so rated by the Navy to function in connection with gunnery fire, can with brief training, be employed as a vacuum cleaner repairman, a refrigerator serviceman, an electric range serviceman, or as a matter of fact, as an all around general electrical appliance serviceman. Similarly, a Gunner's Mate (First or second class) employed on his Navy job is maintaining automatic weapons, has the qualifications and a backlog of experience, which with further training, he can use as an electrical instrument repairman.

Numerous other examples could be cited to illustrate the extent to which the placement of men returning from military services for civilian jobs can be facilitated by knowledge and use of such special aids, particularly, since according to an estimate, five of seven Army jobs have some counterparts in civilian industry. As stated earlier, information is available on physical demands and requirements which by comparison with the physical capacities and limitations of the

[5] Division of Occupational Analysis and Manning Tables, Wash., D. C. "Special Aids for Placing Army Personnel in Civilian Jobs," Vol. I, July, 1943.

[6] Division of Occupational Analysis and Manning Tables, Wash., D. C. "Special Aid for Placing Navy Personnel in Civilian Jobs," May, 1943.

individual can be used as a basis for a selective placement of the handicapped.[7]

The material to which reference has been made represent only some of the tools which are available for use by those responsible for occupational counselling of veterans in individual plants. Lists of occupational families, showing groups of occupations in industries which resemble each other from the viewpoint of the duties performed and of the characteristics required by the worker, represent additional information available to those who will have the responsibility for placing ex-servicemen. The only problem is that of recognizing what need be done and of starting immediately to develop a program of occupational counselling which will make use of the competent personnel and information existing in the organization, together with the special aids which can be obtained outside of the company, to do an effective job of placement on a company basis.

3. While occupational counselling is the basic step, the plan for the placement of men returning from military service will not be complete without provisions for such training as will be necessary to help adjust the man to the job selected for him. This will involve both *refresher* type of training for men returning to their old jobs and indoctrination, supplemened in some instances by more extensive training for men who are being assigned to new jobs. Now, too, is the time to make plans for such training.

A Challenge to the Electric Utility Industry

So much as to the steps to be taken in organizing for the placement of employees returning from military service. I have no delusions as to the novelty of the ideas presented in this brief talk. The suggestions represent probably only a few which have already occurred to those who have been giving consideration to the problem and to the program of providing jobs for the ex-servicemen. Perhaps, too, all that has been said can be summed up in a single sentence pointing to the importance of breaking the problem down into its simplest element, namely, the human individual who is at its core.

To paraphrase a recent comment by Virgil Jordan, the nation's drafting rooms are littered with sketches—finished and unfinished—setting forth broad plans on a national basis, usually topped by the supreme omniscient and omnipotent providential government which will administed the plan and bear its cost. The fact is that the successful plan for the placement of men returning from military service is one initiated from the bottom and directed towards sound accomplishment at the company level. Well planned programs at this level becomes the center of an ever extending spiral for effective action at the industry and national level in smoothing transition from the war to the post-war era of employment.

In presenting this viewpoint, it is perhaps unnecessary to point out that its practicability will vary from company to company and from industry to industry. However, there is probably no industry in which the problem can more easily and reasonably be viewed as essentially a company problem. Individual electric utility companies have not suffered or profited from the economic expansion of labor forces characteristic of many manufacturing plants. In many instances there has been an actual reduction of the working forces which will need enlargement as construction, maintenance, merchandising and promotion activities are re-established. There have been practically none of the problems of conversion which will plague many other industries in adjusting to the post war situation. In other words, the electric industry is in a position to set the pattern or at least to furnish the example in meeting the personnel problems of post-war adjustment. In doing so, it will merely continue the tradition of thoughtful and progressive application of personnel policies which has placed the electric utility high in the ranks of American industry.

[7] Physical Demands Analysis Manual, War Manpower commission, 1943.

Significance of the Term "Net Property"

(*Continued from page* 10)

through the use as a fact of what is only an uncertain estimate.

The fallacy of the "customers' money" catch phrase is not so obvious and the argument can be made to have every appearance of equity whenever the reserve is in fact invested in the property.

The answer is, of course, that as the collection of the fund from the customer is permitted for the one specific purpose of the recoupment of the cost of plant consumed in the service of the public it follows that it must be kept available for that purpose. If then, the company elects to use it temporarily in plant expansion it must be ready to return the money at once when required for its intended purpose. In other words the company (in its capacity of custodian) makes a demand loan to the company (in its operating capacity). Consequently it follows that interest out of the earnings derived from the loan is due to the fund as lender.

The concept of a customer investment requires that the original capital is thereby amortized but since there is no legal way to relieve the company of the reserve liability, it is obvious that his principal cannot be returned to the investor.

The ultimate objective behind the pushing of this concept is to create public opinion in favor of legislation which will require the amortization of public utility plants out of customer payments and for the creation of such public opinion the use of the term "net property" is a convenient camouflage for confiscation.

The offset to this program is once again to recognize the reserve for what it is, namely—a fund created by customer prepayments; and to be particular to recognize the fact by giving to the customer an equitable share of the earnings to be derived from the temporary use of these prepaid funds. This can be conveniently accomplished by suitable interest credits to the fund out of permitted earnings which will reduce the otherwise necessary charges to expense with consequent favorable effect on rates.

I am very conscious of failure to meet the various questions which must be in your minds and trust that they will be brought out in discussion. My whole object, and my excuse for repetitions has been to point out why the concept of "net property"—so obviously desirable in a competitive industry—will be so destructive in the long run when applied to a public utility even though to date the rapidity of growth of that industry has concealed the inevitable results of its adoption. The concept is one of amortization, where none of the amortization payments may be distributed to the investor.

Highlights of Commercial Committee Activities in 1943

By C. E. Greenwood
Commercial Director, Edison Electric Institute

Appliance Conservation Program Off to a Strong Start

THE November issue of the EEI BULLETIN carried an account of the Appliance Conservation Program which is sponsored by the Appliance Maintenance Committee of the Institute under the guidance of M. R. Rodger, Middle West Service Company, Chicago. This joint effort with the manufacturers of electrical equipment and its projected promotion over the coming year is of outstanding importance. The Plan Book which was distributed to all utilities in early December contains letters of approval of the general program from J. A. Krug of OWU and A. D. Whiteside of OCR. The supply of 25,000 dealer folders—"baby" Plan Books —which were printed for use by the retailers in particular has been exhausted and the presses are running again on a reprint.

Two weeks after receiving samples, orders had been received for over 200,000 of the calendar check lists out of the first quarter million run. Window Streamers and other attractive promotional items are still to be printed, and there is every indication that there will be wide response in helping to get the message of care and repair to the millions of appliance users.

Despite numerous press notices which make us hopeful for the production of large supplies of replacements of essential electrical equipment in the home, it is probable that none of this supply will be obtainable for general civilian use before the fall of 1944. In the interim the public must get by with the appliances now in service. There is every reason to take care of such equipment. The dealer repair shops are over-loaded and there is a shortage of manpower for maintenance service.

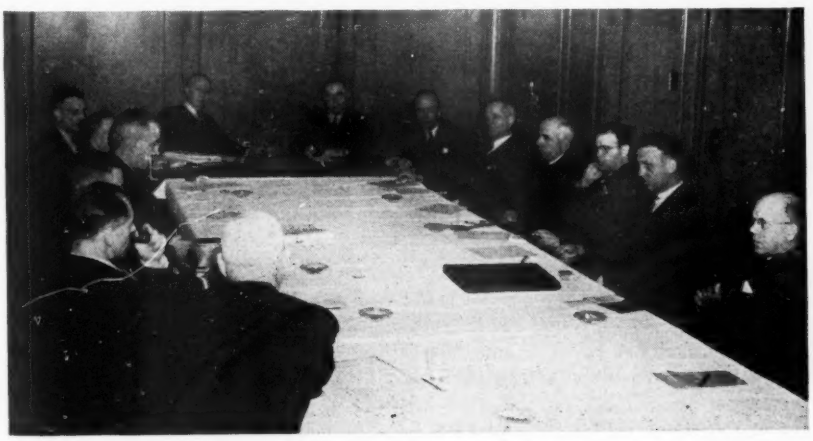
One of the bright spots in the problem of repair and maintenance is the constructive action of OPA in revising Maximum Price Regulation 165 governing costs of repair service. Many utilities that in some instances were giving free service, and in many others offering service at practical cost, were caught when labor and material prices were frozen. With the sharp increase in costs there were those who found it inadvisable to continue. Scores of utilities turned all work over to the dealers by prearrangements to tide them over financially as it became impossible to make sales of equipment. Dealers have found it possible to weather the economic gale by taking on greatly increased business in appliance maintenance.

Leading manufacturers, wholesalers and dealers are cooperating in the appliance conservation program. It is an industry activity in which all groups can contribute in impressing the theme of BETTER CARE — LESS REPAIR which is the national slogan, and at the same time may derive economic advantages.

More Farms to Have Running Water

MAKING it possible for more farmers to have running water was the subject of the last meeting of the Electric Water Systems Council at Chicago at the Hotel Sherman, December 8. The Council is sponsored by the Institute in cooperation with manufacturers of electric farm pumps and water systems and directs a cooperative educational program now in its ninth year. The present Chairman is Roy Duncan of Detroit Edison Company who presided at this meeting of the Plan Committee. This past year emphasis has been placed on maintenance feature and this phase will be continued. The American farmer is being brought to realize the labor saving advantages of the water system and its value in producing more bountiful crop yields and healthier live stock.

An improvement in the raw material situation, together with the acknowledged requirements of the farmer, has made it possible for WPB to raise the quota for the production of pumps in the coming year. The Planning Com-



Planning Committee of the Electric Water Systems Council meets in Chicago on December 8 to discuss program for 1944.

Left to right: C. D. Leiter, The F. E. Myers & Bro. Co.; Carl Jeerings, Rochester Gas and Electric Co.; James Stier, West Penn Power Co.; Robert Johnson, Toledo Edison Company; Harry Rothermel, The Dayton Pump & Mfg. Company; S. S. Burnett, The F. E. Myers & Bro. Co.; Herbert C. Angster, secretary, Electric Water Systems Council; Roy Duncan, Detroit Edison Company; Karl Brower, The Dayton Pump & Mfg. Company; C. E. Greenwood, Edison Electric Institute; L. H. Taylor, The Deming Co.; Walter Deming, The Deming Co.; Harry Park, Flint & Walling Mfg. Co.; and Richard Baird, The Duro Company.

mittee of the Council is now considering early promotional activity for these water systems, and also long-range promotion for the postwar period. To quote from the report of the Secretary, H. C. Angster: "The immediate postwar objective of the industry is the production of 500,000 electric farm pumps and water systems in the first year after Victory. The ultimate goal is to have running water in every farm home in the United States.

"So definite has been the improvement in the output of water systems that there is every indication that the backlog of orders now on manufacturers' books will be entirely absorbed by July 1, 1944, it was predicted at the meeting.

"The difficulties now being encountered by the manufacturers are chiefly in connection with obtaining fractional horsepower motors, switches, and bearings in adequate quantities. Another problem is that presented by the draining off of skilled personnel by the armed services.

"These problems, however, are being solved with the assistance of the WPB and the OCR both of which recognize the importance of running water in the nation's food production program. It was reported that OCR contemplates adding water systems to the list of 'essential welfare items.'

"Water systems are now being manufactured under order L-257 which permits manufacturers to make 67 per cent of their 1941 production. This is exclusive of parts made for repairs and replacements. A motor and a pump are considered a replacement item."

A further step by WPB has been the liberalizing of the regulations affecting the drilling of wells and the repairing of old ones.

There are many thousands of farms with electric lines near at hand which have still not acquired water systems. The farmer is in a better position to invest now than for many years, and it is planned that the electric utilities coordinate with the pump manufacturers and dealers in absorbing the whole quota of pumps manufactured in coming months.

Electrical Labor for the Farmer

IN anticipation of the problems of implementation of small farms to be solved in the Victory period, the Farm Utilization Committee of the Institute under the Chairmanship of C. H. Leatham, sponsored a joint conference of representatives of utilities, manufacturers and other groups concerned in the welfare of the farmer on December 9, at the La Salle Hotel, Chicago. The immediate objectives were to discuss the basic requirements of the smaller farmer for profitable operation. Only as the farmer makes more profit will he have money available to purchase productive equipment which is essential for greater food production, and for the release of time for many other chores.

The Farm Utilization Committee recognizes the need for more and better farm machinery and has had some firsthand experience through its membership in the use of machines on the market, and what is still essential to be produced. Heretofore the farmer has been dependent to a large measure on steam engines or tractors. These machines are in large units and need attendance. The utility companies have taken electricity to a million and a half farms and they want the farmers to benefit by it. There can be numerous automatic devices electrically operated in the productive class in which he may invest to his advantage. They have passed the research stage in the agricultural colleges. Manufacturers have produced few manually operated.

Since there is indication that the humanitarian instincts of Americans will continue the USA as the world's breadbasket for a few years ahead, there is reason to look at food production as a long-range consideration as well as of immediate import.

With this background of thinking the conference was called for broad discussion. There had been 80 invited to this conference and so great was the interest in the subject that 53 attended. The utility list included commercial executives as well as agricultural engineers; International Harvester Company, General Electric, Westinghouse, James Manufacturing, Babson Brothers and Allis-Chalmers were represented; there were instructors from four of the agricultural colleges, and miscellaneous groups concerned with the utilities in the electrification of the farm.

Chairman C. H. Leatham of Monongahela West Penn Public Service Company, Chairman of the Farm Utilization Committee, presided. In opening the meeting, Mr. Leatham submitted an informative outline of the objectives of this meeting which is to be considered as first of a series for the development of a general program of action. A statistical review of farm electrification to date, with some of the opportunities ahead, was scheduled for presentation by Edwin Vennard, Vice-President, Middle West Service Company, Chairman of the General Commercial Committee. In his absence on account of illness M. R. Rodger of the same company brought his enlightening message.

Grover C. Neff, President, Wisconsin Power and Light Company, gave an impressive talk on the needs of the farmer and some of the obligations of the manufacturers in supplying these needs for profit and for the general welfare of the farmer.

Roy Hayman of Oklahoma Gas and Electric Company brought to the meeting numerous practical applications which years of experience in working with the farmers had shown to be essential equipment but not now available. At least two items in his list had been produced and sold but the manufacturers had not been financially able to stay in business.

Scheduled for discussion were Chester H. Lang, General Electric; R. J. Weber, Westinghouse; A. P. Yerkes, International Harvester; C. H. Wilson, Babson Brothers; Stephen Mahon, James Manufacturing; P. T. Montfort, Texas A. & M. College; R. U. Blasingame, Penn State College, and George Kable, Editor, *Electricity on the Farm*, and each one brought out illuminating facts and expressions of interest in joint action.

Open discussion was spirited and stimulating, and genuine concern in this movement sponsored by the Institute was evident. Discussion was crystallized into an arrangement to draw upon research and knowledge of the agricultural colleges for such tested farm processes as can be electrified, and to influence reputable manufacturers with national distribution to produce the machines. The utilities are ready to cooperate to the full with the manufacturers in selling all such practical apparatus which will help the farmer to help himself.

Chairman Leatham announced that there would be a later meeting called, while in the interim certain pertinent information would be prepared. Assignments were made, among which will be a study of ways and means for establishing organized effort to obtain the broad objectives of assistance to the farmer through the installation of more automatic electrical equipment.

"Sight for Victory" Assists War Production Effort

A DIRECT assistance to the war effort was registered in the response to the "Sight for Victory" program of the Better Light-Better Sight Bureau. It is an established fact that adequate light applications for specific seeing purposes in the industrial plant assist in speeding production, contribute to better products and decrease in accidents. With these thoughts in mind the Bureau centered its effort on this lighting educational feature. The activity consisted of the preparation of a 32-page book especially designed to be presented to war plant operators telling the simple, powerful facts about Sight and Light in war industry.

Well illustrated and equipped with special Light-Sight check forms, the book enabled officials to make a clear and comprehensive analysis of the seeing conditions in all kinds and sizes of plants in war production.

Launched at the EEI Commercial Conference last April, the response of a large number of utilities operating in war industry centers was instantaneous. The necessary number of books were purchased by these utilities for local coverage of war plants, and members of the lighting department made personal presentations to the operators. In many instances the lighting men made check surveys and recommendations on the spot while in others arrangements were made for later surveys.

In the course of three months over 30,000 books were personally delivered to industrial plants by utility representatives and a cross check of reports on results indicated surveys completed and recommendations made in from 10 per cent to 50 per cent of the plants contacted.

The program is continuing and only recently a third printing of books was found necessary. A number of utility commercial executives pronounced this one of the most effective programs instituted within the lighting industry in many years.

Commercial Planning Committee Holding Monthly Meetings

THE concept that PLANNING TIME IS NOW prompted early action on the part of the General Commercial Committee to establish a committee for postwar considerations. G. E. Whitwell, Philadelphia Electric Company, Philadelphia, the first Chairman, held a meeting on September 30, 1942, and a comprehensive outline of subjects for survey and follow-up developed.

M. E. Skinner, Buffalo, Niagara & Eastern Power Corporation, Buffalo, succeeded Mr. Whitwell as Chairman for the present administrative year. The Committee as now constituted includes:

M. W. Arthur, Consumers Power Co., Jackson, Mich.

R. D. Cutler, The Hartford Electric Light Co., Hartford, Conn.

C. E. Michel, Union Electric Co. of Missouri, St. Louis, Mo.

G. W. Ousler, Duquesne Light Co., Pittsburgh, Pa.

P. H. Powers, West Penn Power Co., Pittsburgh, Pa.

H. M. Sawyer, American Gas & Electric Service Corp., New York, N. Y.

H. P. J. Steinmetz, Public Service Electric & Gas Co., Newark, N. J.

Edwin Vennard, Middle West Service Co., Chicago, Ill.

G. E. Whitwell, Philadelphia Electric Co., Philadelphia, Pa.

Chairman Skinner is holding meetings monthly insofar as practicable. Four recommendations involving long-range thinking have been made to the General Commercial Committee. The first is the development of a Sales Training Course for utility people to be completed and in readiness for the building of sales forces in the immediate peace-time period.

Secondly, it is proposed that the Better Light-Better Sight Bureau which is a coordinating activity for industry lighting groups, sponsor and promote a plan of "Recommended Practice for Safety and Efficiency in the Construction of Portable Lamps." The IES recently announced that the name of their organization could not be further identified with certification of such products, but the Society will continue to develop and publish "Recommended Practice in Lighting Applications." Such procedure on the part of the Bureau would identify quality products for the protection of the public. Ways and means to this end are now under advisement.

Thirdly, the Planning Committee has recommended a cooperative interest in the movement of the Indoor Climate Institute which is developing a national movement for creating public consciousness of the need of healthful atmosphere for home living.

A fourth recommendation is continuation of the close coordination which has existed over a term of years with the construction industry and the encouragement of local cooperation between the utility and the building interests. It is recognized that new methods of construction will be introduced in the peacetime period and a probable increase in the prefabricated type of house may be expected. This requires a new approach to the sale of equipment. It is the thinking of some of the manufacturers of prefabricated houses that complete units for bathrooms and for electric kitchens may be installed. The electrical industry will be concerned in the type of equipment, and likewise the adequacy of wiring which will be installed in standardized partitions.

In this connection it is noteworthy that *Architectural Forum,* a leading magazine in the construction field, is proposing a consumer durable goods plan which promotes the completely equipped home. The broad objective is to induce housing agencies, mortgage insuring and financing sources, to include by agreement the cost of electrical equipment and other "fixed" items in the original mortgage loan.

There is indication that there will be new names on new electrical products and some of the manufacturers already established in the household equipment field will expand their lines. There will be new factors to consider in the field of distribution and new elements such as chain stores will have a place in the sales picture. What the utilities may decide to do in connection with direct selling will be dependent upon an appraisal of local conditions and the requirements for best serving the public.

A survey indicates that most of the utilities that were selling before the war will continue similar practice and it is a foregone conclusion that merchandising efforts will be adequately meshed with the selling of the retailers to produce greater volume.

Other Committee Studies

Industrial Power and Heating

HOLDERS of the Power Sales Manual will be gratified to learn that four more sections will be ready for distribution in the Spring of 1944. A profound study of major subjects over several months has been made by the Industrial Power and Heating Committee under E. L. Kavanaugh, Chairman. The first of the Sections to be available will be Production Method Analysis for the Power Salesman. Those to follow will be Welding; Electronics in Industrial Application, and Induction Heating of Conducting Materials.

Among the other major questions now under advisement, the one of outstanding importance concerns the field of competition in the postwar period. Included in the list are what is the Army going to do with surplus engines, how are leading companies thinking in respect to the stationary field, and what may be expected from competition of other fuels? In this connection auxiliary and standby rates will be a consideration.

Electric Water Heating

Expansion of electric water heating service may be expected in peacetime and basic studies of the factors involved in this promotional effort are being given attention by the Electric Water Heating Committee, C. M. Turner, Chairman.

For a year and more the committee has been concerned with standardization and has made progress in its recommendation on tank sizes. Numerous other subjects bearing on the increased output such as rates, distribution facilities and also essentials for further standardization will be studied by a joint committee representing the Sales, Rate and Engineering groups. No products are available now for general civilian use and the committee's objectives are a clarification of conditions, and finding ways and means for more rapid development of the water heating load in normal times.

Lighting Committee

The field of lighting will offer broadest opportunity for development "when the lights go on again." The partial release of restrictions on lighting of commercial establishments, homes and highways impresses the need of early promotional considerations. The Lighting Committee under Chairman W. A. Stannard has been concerned over past months with fundamental studies of particular interest to the utilities in connection with lighting expansion, such as power factor considerations, new lighting standards, lighting service organizations and sales training. The periodic publication of *Lighting Service Tips* has continued, which is an exchange of lighting ideas and includes informational material on special applications.

As the Blackout and Dimout restrictions were eased, the requirements of the National Conservation Program still limited return to customary lighting levels except in industrial applications. Since the first obligation of the industry is to conform to every need of the war effort, considerations for better lighting in non-essential applications are held in abeyance. However the committee has coordinated its efforts with such activities as the Sight for Victory Program to assist in war production.

Wiring Committee

The Wiring Committee under the Chairmanship of H. R. Stevenson outlined its aims and objectives as follows:

To develop wiring standards for all classes of customers' premises—residential, farm, commercial, industrial—that will permit a full and unrestricted use of electric service through adequate and economical wiring installations.

To disseminate information on new and simplified wiring designs and materials of merit for all classes of customers, and promote their use through any appropriate means, including trial installations.

To consider and assist in the formulation and revision of codes and standards relating to wiring, and endeavor to have unwarranted restrictions avoided or removed.

To coopeate with other organizations or trade groups interested in more adequate or economical wiring.

Some of these are long-term studies and at the committee's last two-day meeting held recently in New York satisfactory progress was reported.

Home Service

The order of the day for utility Home Service Departments is close coordination with the program of the War Food Administration. For the past two years the Home Service Committee under the Chairmanship of Miss Fern Snider has discussed ways and means of effective tie-in with Nutrition and other health subjects so vital in connection with the war effort. Reports have been published from time to time on particular phases of activity, and the committee held a successful conference last April in connection with the General Power Conference sponsored by the Institute. In recent months joint action has been taken with the Council of Electric Operating Companies in the appointment of a utility representative in each state for liaison with the nutrition representatives of the United States Department of Agriculture.

The Terms of the McCall Award for 1942 were based on the effectiveness of contributions of Home Service Departments of electric utility companies in fostering and furthering the war effort through Nutrition education, and other activities aimed to bring messages on the relationship of food and health to the public. Likewise the Award for 1943 is based on accomplishments along similar lines. The Home Service Committee is attempting to reach the women engaged in this work with helpful information and experience data.

General

It is unfortunate that traveling conditions have prevented more scheduled meetings, but notwithstanding such obstacles encouraging progress has been made. The General Commercial Committee under Chairman Edwin Vennard is meeting on January 11, in New York, and the Agenda not only includes a review of progress but will give major consideration to postwar commercial activities. It is probable that the annual Spring Conference will be held at Chicago in early April.

Overhead and Underground Systems Reference Books Needed for Military Services

Copies of the Overhead Systems Reference Book and the Underground Systems Reference Book, both published by the N.E.L.A. and both now out of print, are needed by the Navy Department. It will be appreciated if utility companies or individuals having extra copies, or copies not presently required, will advise the editor of the EEI BULLETIN, 420 Lexington Ave., New York 17, N. Y.

New Techniques in Leadership

Training Program for Supervisory Employees

By Clyde V. Hussey

Assistant to President, Arkansas Power & Light Company, Pine Bluff, Ark.

Presented before Employee Activities Committee Meeting, Southeastern Electric Exchange, Atlanta, Ga., Nov. 5, 1943

SUCCESS or failure of the business managed utilities, as we have known them, depends upon the kind of industrial relations we develop now for the era of reconstruction which lies ahead. Today we have the opportunity to develop the leadership techniques and practices for outstanding success. If we fail to do so, the opportunity may be snatched from us sooner than we think. I appeared before the Employee Activities Committee during September, 1939, with a discussion on "Job Specifications" and at that meeting the trend toward a new philosophy or "New Technique" was discussed. Since that time many things have happened which affected labor relations. Many of the difficulties we have experienced could have been minimized, had we adopted some of your suggestions offered during that and subsequent meetings of the Employee Activities Committee.

A review of minutes indicates that we have an abundance of good papers on relations and training, but we probably do not utilize this material.

Our situation cannot be made secure by just saying "I endorse it." We have to put up a fight for the changes and improvements we advocate.

Unless immediate post war preparations are made, the Utilities will likely find it difficult to attract and hold capable supervisory personnel. Some will not return to their old jobs from military service due to war casualties; others will enter new industries or activities offering greater inducement. Many will go in business for themselves. To substantiate this opinion, I point out the experience of one Utility Company represented here today. Out of 17 men already released from Military Service, only five returned to the utility industry.

The post war period will see new opportunities in fields such as aviation, television, electronics, plastics and light metals. These new opportunities appeal to and attract the type of personnel we must compete for if we expect to make progress and continue to be an integral part of the free enterprise system from which the other four freedoms stem.

We must develop executive leadership and industrial statesmanship which will inspire every man down the organization line to study the job of the man ahead of him and work with enthusiasm to keep his ability on the upgrade and feel confident of advancement on merit. Individual enterprise in action. It is the job of every executive to develop executives.

It cannot be denied that the employer-employee environment of the past decade has brought permanent changes in the minds and attitudes of both employer and employee. Some of these changes have developed in such a gradual manner their significance is not apparent without careful study.

Electric companies in the South which have been outstanding in their record of low labor turnover and stability of employment in the past have recently experienced extremely high turnover of personnel and perplexing manpower problems. Many of these difficulties could have been avoided or minimized by intelligent planning and operation of a personnel maintenance and training program. We now can benefit from these experiences and plan positive action for the future. It is our obligation and privilege to build a firm foundation for an enlightened labor-management relationship. This foundation must include:

1. A sincere desire on the part of management to provide a clear interpretation of responsibility and authority through a functional organization plan.

2. A program of advancement so that the employees' progress upward may be intelligently planned and carried out with no discouraging factors to halt this process.

3. Written guiding principals and policies for supervisors and clearly defined job specifications for the workers.

4. Basic training to teach the technique of business as well as technique of supervision. This must include acceptance of responsibility to not only management but also employees, customers and investors.

5. Proper selection and placement of supervisory personnel based upon investigation of temperamental and physical capacities, skill and other qualifications.

6. Wage administration policy with established pay ranges based on the differences in responsibility and job requirements.

In order to improve we need to know what is wrong. A careful study of the following factors to determine which are applicable is a good approach to make.

1. Executives' time has been preoccupied with situations involving finance, regulations, restrictions, "political good will" and problems other than organization training and employee relations.

2. The gap in relationship between management and worker has widened, and it is not generally understood that the interests of both are identical. The new social philosophy which is developing into a habit of "working by the clock" has been detrimental in many respects. Some workers have become machines that go home after working hours. They are paid on the installment plan—so much a week or month. This may apply in some of the upper brackets too.

3. Many employees have quit generating ideas because management has not kept them informed nor stimulated their interest successfully.

4. Inability of management to agree on what the employee or labor problems really are, and how to approach their solution. Too many executives believe things that "aren't so" and cannot, or will not uproot stereotype thinking habits.

5. Some executives have unwittingly adopted a defeatist attitude or an inertia to change or adopt new ideas and practices.

6. Failure to set up a sound functional organization plan and fully utilize the

ability, ideas and human resources already available. There are many capable men in the ranks who yearn for recognition and crave opportunity for self-expression. The greatest waste in business today is the unused brain power of employees. True "economy" is the conservation of human resources. There has never been a time when sound and progressive thinking was needed more than today. We certainly seem to lack the imagination of our forebears.

The utility industry is comparatively young, but many do not recognize that new problems have developed as a result of its age as well as the unprecedented events of the past decade.

1. For the first time in their history many companies are confronted with a pension policy problem. We might ask ourselves this question: How realistic is our thinking on this situation?

2. Past training methods are no longer adequate due to comparatively large "employee turnover" in the past few years, particularly since Pearl Harbor. Are we honestly doing anything constructive about this?

3. Advanced social legislation has opened a new field of responsibility and activity in modern management technique. Are we meeting this intelligently?

4. The war restrictions regarding jobs and wages in many instances have penalized the very group charged with supervising and training responsibilities. What are the attitudes of this group?

5. Some companies have failed to develop understudies for important jobs and as a result are constantly in difficulty. This new leadership must be developed to cope with our post war economy and competition.

6. Few companies have what they consider a satisfactory training program. This was determined from a recent check of a number of companies, some represented here today.

7. Training requirements of neighboring companies are in many respects identical, but no attempt is being made to avoid duplication of effort, nor to pool interests and develop a plan of education or an information program for utility workers.

8. Companies in the habit of taking their employee morale for granted might profitably conduct an attitude survey as a basis for determining what employees really think. A recent survey revealed that out of forty utilities companies, 50 per cent had no employee information program of any kind.

Need for Long Range Program

The day to day need for training and educational programs are created by such occasions as hiring of new employees, promotions and transfers, changes in procedures and specifications, expansions in force, and meeting specific public relations problems as they arise. Business policies, etc., constantly change—employees need to be informed.

The war emergency has emphasized the importance of systematic training since the loss of trained and skilled personnel has proved too large for the regular supervisory force to handle the training of new employees in the time available.

Why Utility Training is Essential

1. Foremen and supervisors are only contact with employees.

2. Employees are our only direct personal contact with public.

3. Lack of understanding or misinformation cause of all public unfriendly attitude.

4. Complete frankness and thorough training removes mystery and all anti-social implications.

5. Dispel uncertainty and doubt; employees like to be well informed; embarrassing when unable to answer questions regarding company.

6. Program designed to give basic background of knowledge about public utility business, history, aims, policies, and procedures of company.

7. Public entitled to correct answers regarding financing, rates, policies, earnings, taxes, regulations, holding companies, Power Pool, REA, etc.

Why Training Programs Fail

Many programs have been started with a great enthusiasm only to "die a natural death" after the first few months. A brief study of these efforts usually reveals that a few points might well be considered at the beginning of any program.

1. Don't start any activity unless and until top executives and department heads are fully "sold" and will support the activity continuously and take active part in it.

2. Don't do it "piece meal." Don't nibble at the problem. Most programs are piece meal unless complete plans are laid for the foundation of a well rounded program.

3. Fix definite responsibility for success of the program on Department Heads and Managers with the assistance of a training director to coordinate the entire program.

4. Organize a training group under supervision of Director with full time assignment to edit materials and outlines, and produce and carry out the programs as a staff function for the Department Heads and Managers.

5. Adopt a budget of expenses of the entire program. The training of executives, supervisors, and workers takes time and costs money. The cost cannot be avoided if a sound program is followed.

6. Take steps to assure absolute internal cooperation among the general office executive and administrative personnel in developing material and participating in field conferences according to pre-arranged schedules.

Objectives for A Sound Training Program

1. To produce more capable executives, managers, and supervisory personnel.

2. To improve employee relations—remove department narrow-mindedness.

3. To improve employee efficiency and morale—release from fears and uncertainties.

4. To reduce turnover—costly in many ways.

5. To prepare for promotion.

6. To permit expansion rapidly when warranted.

Training Organization

1. Training Director and assistants.

2. Supervisors for each division and major department.

3. Group leaders for about every 10 to 15 employees.

4. Assistant or alternate group leaders.

5. Top executive must initiate program. Chief executive be chairman of Committee of top executives. (Steering Committee.) A director assisted by supervisors representing each Division, Department and plant. Each Supervisor responsible for a number of group leaders. (About eight to 15 employees to a group.)

6. Preparation of material responsibility of Director with aid of Sales Department staff for assistance and production of material.

7. Selection of material up to "Supervisor and Planning Committee"; conference material prepared by qualified Department Heads.

8. Group leaders "Instruction Meetings" held regularly to discuss program before employee meetings are held.

9. Group leader responsible for training each employee in his group, notify-

ing him of meetings, attendance record, notifies supervisor of unanswered questions, etc.

Trainees

1. To provide conference training for executives, administrative and supervisory personnel.

2. To continuously train all other employees and provide appropriate manuals for proper introduction of new employees to his job.

3. To provide training for promotion of employees to jobs carrying greater responsibility—upgrading and incentive insured.

4. To assure best practicable placement of employees according to basic aptitudes, age, and temperament.

Time

All training conferences should be held on company time not less than one hour a week in selected groups of not over 15 employees.

Home study must be encouraged and quiz questions and contests will stimulate extra study.

Training Methods

It is necessary to restrict the size of groups so that each member will have a chance to take part in discussions.

The meetings should be informal, usually gathered around a conference table or if only chairs are available, with chairs in a "U" arrangement. Leader steers discussions along constructive planned lines but is not a lecturer. He is to find out how much members know, put them at ease, maintain their interest, see that each member takes part and follows up to see that information is being absorbed.

Training Material

1. Discussion outlines.
2. Films and sound slides.
3. Charts.
4. Actual materials and job practices.

Administration of Program

Any Company exploring the possibilities of a supervisory training program first must decide who are to be trained, and what nature of training is needed. Utility Companies usually classify foremen, managers, superintendents and department heads as supervisors or executives. For the purpose of discussing supervisory training we will consider an executive as "anyone who has supervision over others," and a worker as "anyone over whom an executive has supervision." The training Director should become acquainted with the functions, job specifications and supervisory techniques and any other activities in connection with supervision responsibilities.

Analysis of the Employee attitude and morale survey will suggest the nature and need of particular features in the training plan.

The top executives sometimes felt to be above the need and too busy for training should be encouraged to take part. Many executives of long experience do profit materially by participating in a training course on human relations.

This is also necessary in order to keep in touch with the nature of discussions and properly interpret the philosophy of management to the executives who are the only contact with the workers.

A definite time limit for the courses should be set and made known to the employees. Experience of many companies indicates that meetings held once a week at regularly scheduled times are most productive.

The guided conference method is far above other methods for supervisory training. The selection and training of discussion leaders will determine success or failure of the program.

Desirable qualifications should include:

1. Education equivalent to at least some college training in personnel and business administration, preferably some teaching or training experience.

2. Ability to influence the orderly thinking of others, open-mindedness, pleasing personality and ability to get along with others.

3. Demonstrated leadership ability experienced in, and knowledge of, the fundamentals of supervision based on actual experience.

4. Thorough knowledge of purpose, organization, policies and operation of the company. Have a fair knowledge of the economics of business as well as the company.

Each discussion conference must be planned by the training committee with specific purposes or objectives to be achieved. The discussion should be controlled by the leader to conform to a predetermined pattern but the leader does not dominate the meeting nor force his own personal opinions.

Emphasis should be laid on getting down to specific case material and stimulating profitable discussion. Legible and precise charts are a most valuable aid and should be used in presenting the subject matter.

In conclusion, there are, as you know many advocates of publicly owned electric utilities. Some of them are honest and sincere. There are many business men who feel that, as a means of developing the country and preparing for emergencies, such as now exist, facilities for generaing and transmitting power should be built far in advance of demands which justify the risks involved on the part of business, which must pay interest, dividends, and taxes; and who therefore believe that these risks should be borne by the public.

Our industry stands at the cross roads, and we can choose to adopt new techniques in management developing leadership and supervision which can make the efforts of our personnel worthwhile and successful, or we can drift down the road of uncertainty and indecision and let the future go by default.

Our predecessors and leaders in this industry spent a lifetime building it. I do not claim that overhauling policies and launching a supervisory training program will guarantee our future success, but I feel safe in saying we cannot expect to succeed without such a program.

Knob and Tube Wiring Chart

On the following page is a chart showing all the various details of connections, splices, turns, spacing, outlets, clearances, etc., for concealed knob and tube wiring and also for open cleat work. Knob and tube wiring was formerly the most prevalent type. It is still very good wiring, vouched for by all who are thoroughly familiar with it. The reproduction is from an original chart, 16 x 18 inches, prepared by James Steel Mahan, 201 N. Wells St., Chicago 6, Ill. The large chart incorporates the 1940 code Revisions and marginal notes, giving detailed explanations of the drawing. They are available from Mr. Mahan at the following prices: Single copy—10c. Quantities: 3 for 25c; 4-25 @ 7½c each; 26-50 @ 6c each; 51-100 @ 5c each—Postpaid. 101-500 @ 4c each; 501-1000 @ 3½c each—F.O.B. Chicago. Quantity shipments of 1000 or over are available flat, if desired. Others are folded to fit 6" x 3½" envelope. The charts are blank on one side to carry company message, if desired for that purpose.

CONCEALED KNOB AND TUBE WIRING
AND
OPEN CLEAT WIRING
JAMES STEEL MAHAN ~ 201 NORTH WELLS STREET - CHICAGO, ILL.
Copyright 1936
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NON-METALLIC BOXES
NO CLAMPS OR WIRE-FASTENERS REQUIRED. NON-METALLIC BOXES ARE RECOMMENDED FOR ALL CONCEALED NON-METALLIC WIRING SYSTEMS. NON-METALLIC COVERS ARE STRONGLY ADVISED FOR USE WITH NON-METALLIC BOXES.
EXPOSED SURFACE CLEAT WIRING
EXPOSED KNOB WIRING
METAL ARMORED & NON-METALLIC MULTIPLE CONDUCTOR CABLE
PENDENT STRANDED WIRES
TWISTED
1 SERVICE KNOB
2
3 SOCKET CONNECTION CLEAT WIRING
4 90° TURN
5 WIRE SUPPORTS
6 CONNECTION
7 3-WIRE CLEAT FOR LOW VOLTAGES
8 JOINTS & SPLICES
9 3-WAY SWITCH
10 4-OR-MORE-WAY SWITCH
11 CONNECTION
12 WIRING TO RECEPTACLE
13 90° TURN
14 WIRING TO RECEPTACLE
15 SPLIT KNOB
16 STANDARD KNOB
17 2-WIRE CLEAT
18 CROSS WIRES
19 KNOBS TO CONDUIT
20 DIPS TO CLEATS
21 CONNECTION TO PENDANT SOCKET FROM CLEAT SUPPORT
22 SPLIT TUBE
23 CEILING BUTTON & DROP CORD

Ten Years *Without* Progress in Accident Prevention—a Challenge to Our Industry

By K. R. MacKinnon

Operating Sponsor, Ebasco Services Incorporated

From a talk before a meeting of safety and personnel representatives of Ebasco Client Companies, Chicago, Ill., Oct. 4, 1943

IN the whole electric utility industry last year 129 men were killed and four totally disabled—a fatal accident rate of 0.51 per thousand employees. The year before the average was 0.50.

The electric utility industry's average for the past 10 years is 0.62—a total death list of 1550 men. That's enough employees to completely man two average-sized companies—and don't forget that these men killed are among the finest physical specimens we have—many of them experienced employees of long service who have left behind them loving families.

The management of any industry with such a record bears a great responsibility which it cannot evade. What have we done—what are we doing—what are we planning to do to stop these inexcusable accidents and save these valuable lives?

We have before us here a chart of electrical accidents for the period 1923-1942—issued by the Accident Prevention Committee of Edison Electric Institute. The gas fatal accident rates from 1929 to 1942 issued by the American Gas Association have been added to the EEI chart and are shown in a dotted line. You have, no doubt, all received copies of this chart and have studied it closely. How many of you have plotted your own company figures on this chart—to compare them with the national average?

Charts are excellent tools—*if we use them.* They show us at a glance what sort of progress we are making—whether or not we are doing a good job. You will note from this chart that for the past 10 years our accident record has run practically flat—our progress has been sideways instead of down. *Lost-time* electrical accidents are in fact running slightly higher than 10 years ago—while *fatal* accidents have only decreased from 0.72 in 1932 to 0.51 in 1942. The gas fatal rate has *increased* from 0.23 in 1933 to 0.28 in 1942.

In the period prior to 1933 fatal accidents were materially reduced. The electric chart shows that in the period 1923 to 1926 fatal accidents were averaging 1.68 per thousand. During the next seven years they decreased to 0.66—a decrease of 61 per cent—*a saving in lives of about 255 per year.*

Did this remarkable saving in human lives just happen? Or was it the result of a lot of good hard work on somebody's part? A good rule to go by is to assume that *nothing* just happens in this world. Great results are always achieved by *blood* and *toil* and *tears* and *sweat.*

In the period prior to 1926 where the curve ran flat, and about 400 men were being killed each year, accident prevention had reached the stage where accident committees were so interested in resuscitation and first aid that they seemed to forget that their job was to *prevent the accident,* not to patch up the patient after he had had one. No statistics on accidents were collected prior to the year 1926, when these years' figures were obtained.

Between 1926 and 1933 the curve slopes down at a consistent rate. During this period a determined drive was made along lines which *herctofore had not received sufficient attention.* Some of these are as follows:

1—Increased interest by engineers—both design and operating. The Accident Prevention Committee tied in and worked closely with all engineering committees.

2—Increased interest by executives.

3—Increased stress on foreman responsibility.

4—Increased use of safety rules.

5—Increased use and improved design in rubber protection.

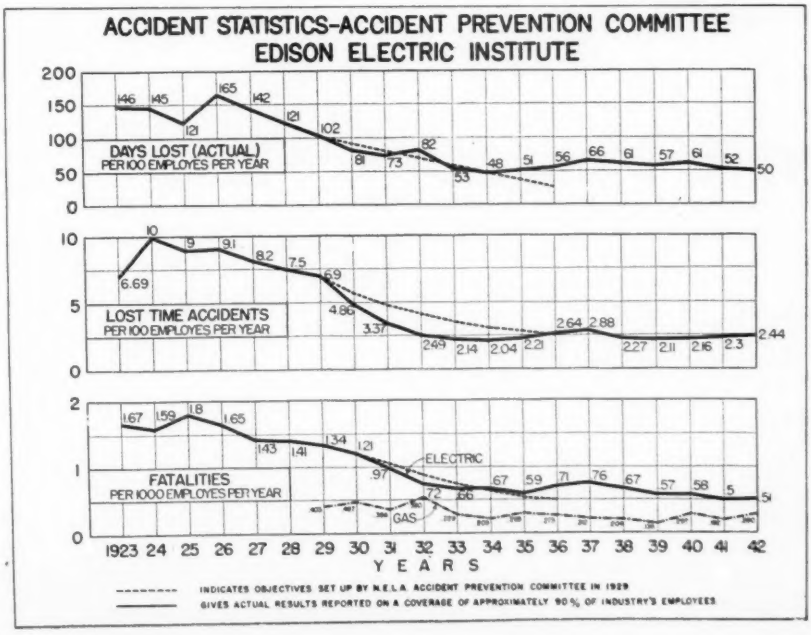
6—Increased use of statistics.

7—Increased competition among companies.

8—Better staff work by Safety Directors.

9—Increased recognition that serious accidents are almost entirely caused by *improper supervision* or *improper methods of doing work.*

The last item is probably the most important of all. It places accident prevention in the category of an operating


ACCIDENT STATISTICS-ACCIDENT PREVENTION COMMITTEE
EDISON ELECTRIC INSTITUTE
DAYS LOST (ACTUAL) PER 100 EMPLOYES PER YEAR
LOST TIME ACCIDENTS PER 100 EMPLOYES PER YEAR
FATALITIES PER 1000 EMPLOYES PER YEAR
ELECTRIC
GAS
1923 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
YEARS
INDICATES OBJECTIVES SET UP BY N.E.L.A. ACCIDENT PREVENTION COMMITTEE IN 1929
GIVES ACTUAL RESULTS REPORTED ON A COVERAGE OF APPROXIMATELY 90% OF INDUSTRY'S EMPLOYEES

function. Accidents mean poor management. They mean that companies which have a bad record are not doing a good all-round operating job—that the machine is not clicking. The president, general manager, general superintendent, superintendent of power, division manager, division foreman, general foreman—each and every one should examine his responsibility and see why work done under his supervision is being done in an improper manner.

Too many accidents have been checked off as due to carelessness or hard luck, when the real cause is a lack of a good maintenance schedule—or a lack of a uniform, properly supervised method of construction or operation.

Now—if these nine activities were responsible for turning the curve down—and saving over 250 lives per year—why has it run so nearly flat the last 10 years, with a reduction of only 20 fatal accidents per year in that period?

First you will note the rise in accidents between 1935 and 1937. That was probably due to the increase in construction work coming out of the depression—which in turn brought new men on the pay rolls—men who had not been trained in safety. Since 1937 there has been a slight decline but the curve for the last four years is practically flat.

Are we at the rock-bottom minimum? Is 0.5 the best we can do? Are you men who are responsible for the promotion of safety work in your companies satisfied to sit back and admit that we must go on killing 125 men in the electric industry and 25 in the gas industry every year?

A breakdown of the electric figures for 1942 (see Table I) shows that one company with 23,000 employees had a rate of 0.14, 20 companies with from 3000 to 10,000 employees averaged 0.32, while 91 companies with from 500 to 3000 employees averaged 0.65. The big companies average about half the average sized companies—perhaps there is a good reason for it. I don't know.

Anyone who thinks 0.5 is a reasonable record should read the descriptions of fatal accidents which come in to the insurance departments of your companies. Poor operating procedures, poor maintenance methods, poor supervision, poor training of crews—are written all over them. Lack of foreman responsibility? Yes—but greater lack of responsibility by the superintendents to whom the foremen report. When you find some foremen or some divisions with good records and others with bad ones, the fault generally lies above the foremen. In spite of our safety organizations, safety engineers, and safety committees, there is still a marked lack of safety-minded management running throughout our companies from president to groundman. If there weren't, we wouldn't be killing 125 to 130 men every year.

TABLE I—FATAL ACCIDENT RECORD—ELECTRIC UTILITY INDUSTRY
1942

Number of Companies in Group	*Average No. Employees*	*Total No. Employees*	*Fatal Accidents*	*Rate per 1000 Employees*
1	22,700	22,700	4	0.14
20	3,000-10,000	104,500	34	0.32
91	500-3,000	103,000	67	0.65
170	Under 500	21,200	24	1.13
282	Total	251,400	129	0.51

TABLE II—ACCIDENT EXPERIENCE OF MANUFACTURED AND NATURAL GAS INDUSTRY IN U.S.A.

Year	*No. of Reporting Companies*	*No. of Deaths and Permanent Total Disabilities*	*No. of Deaths and Permanent Total Disabilities Per 1000 Employees*
1929	354	33	0.403
1930	449	53	0.487
1931	453	35	0.356
1932	443	50	0.530
1933	473	23	0.229
1934	422	22	0.205
1935	458	31	0.293
1936	457	30	0.273
1937	480	24	0.212
1938	446	23	0.204
1939	433	16	0.135
1940	449	36	0.297
1941	456	22.5	0.192
1942	439	29	0.280

What can we do about it?

What *must* we do about it?

The following are a few suggestions that may help us solve this problem:

(a) We must put more efforts on our general superintendents, distribution superintendents and superintendents of power—the men who boss the foremen. They are largely responsible for the methods of doing work.

(b) We must institute *job training* and *job analysis* to an extent far beyond anything we have thought of in the past. This is a part of our business which is due to receive major attention in the post-war years. It is the most promising activity in sight for turning that accident curve down. The Training Within Industry program has taught us some worth-while things. Why should we have to depend on the Federal government to show us how to train our employees?

(c) We must pay more attention to statistics and trends. You can't improve your position unless you know where it is from month to month—and remember that a busy president will examine a chart with interest when figures pass unnoticed.

(d) We must examine all serious accidents and *honestly* assess the causes. Too many accidents are still charged to carelessness. Too many accidents are charged to the foremen, when the fundamental cause is the foreman's boss.

When the war is over there will be a tremendous increase in construction work. There will also be a return of men from the armed forces. Both of these will tend to turn the accident curve upwards—and additional efforts must be made to overcome these handicaps. We must get that curve turning downwards again—accidents should be cut to one-fifth of the present rate in five years. We must use all the educational and inspirational activities we have used in the past, streamlined and modernized along the lines we have been discussing. But remember, we have gone about as far as we are going to get by using debating society methods. We need a conquering spirit such as we had in the 1926-1932 period, a spirit that insists on knocking that curve down.

During the past 20 years we have reduced fatal accidents in the electric utility industry by an average of 270 per year. Think of it—270 *every year*—men are alive who would have been killed had the old rate prevailed. Surely that result was worth working for.

But! A hundred and fifty men are still being killed each year by the electric and gas industries. That is a challenge to us all. It is a challenge that *must* be met. You gentlemen representing the largest group of utility companies in the country can be a tremendous force in helping both industries meet that challenge. Your responsibility is great—I know you will not fail to do your part.

The Present Challenge of Rural Electrification

By C. H. Leatham
Chairman, EEI Farm Utilization Committee

Presented before a meeting of the American Society of Agricultural Engineers, Chicago, Dec. 8, 1943

A FORMER West Virginia governor, Howard M. Gore, who was and is essentially a livestock producer and farmer, told me once that agriculture is not a trade, or vocation, or even a profession, but really a culture, as the name states. It is, to some extent, the trade name of a way of thinking and working in somewhat the same manner as we speak of Christianity as being a way of living which sets its followers somewhat apart from the crowd.

That the culture of agriculture is not appreciated fully by city dwellers is understandable and pardonable. It is difficult for all of us to understand a way of living with which we have had perhaps no personal contact or intimate knowedge otherwise acquired.

America, our part of it, has about 6 per cent of the estimated population of the world and many, many times that proportion of its wealth. For example, we have purchased in recent years about three-fourths of the world's total gold supply, mainly through our exports of goods and services. A study made two or three years ago showed that while every youth in a senior class of about 300 students in a typical New York high school had frequently ridden in an automobile, only about 200 out of 300 in a London high school had had that experience. Nearly all the New York families surveyed owned an automobile, of average inexpensive make. The study showed also that an American worker could buy a good used car for the equivalent of about one and one-half month's income, while the average Englishman would have to work several months to make a similar purchase. In France the time element jumped to about 18 months, then to several years in Russia, while in China the average workman would never be able to buy a car at the prevailing price levels.

Such a situation is not peculiar to the field of automobiles. It is also true of electric refrigeration, modern plumbing, central heating, and, in fact, practically everything that we Americans enjoy as daily conveniences and around which our lives are geared. Except in the United States, however, these things are not for the masses, for only a few privileged people can buy and use them. There is a fundamental reason for this situation and American agriculture has had much to do with it. American farmers comprise a smaller segment of our total population than is true of any other nation. Only about 25 per cent of our population is engaged in agriculture. In China and India, the percentages run to 90 and 95 and in the African jungles practically every person produces food for himself and his dependents. A comparable situation existed in America when the first white settlers arrived. Indians had been hunters and tillers of the soil for untold centuries.

Despite the relatively small number of persons engaged in agriculture in this country, our people are the best fed in the world . . . and by a wide margin. But the American farmer does more than that. Though he comprises only about 1½ to 2 per cent of the world population, he produces about one-third of the estimated entire available food supply. This is an arresting fact and it might appear we have nothing more to do, but the truth is we find much to do on our farms, and rightly so. In fact, we know that we have just started, in a studied and comprehensive way, to put farming on a much more productive level which, in turn, will mean a better living for those engaged in this great field of productivity. We are just now beginning to put Electricity to work on the farms and in farm homes. It has revolutionized farm practices and rural living where it has been properly introduced.

Food, we know, is a primary need. People will steal and, in extreme cases, commit murder to obtain food for themselves and their loved ones. But when agricultural methods are so primitive that everybody must till the soil for a living, there can be no time nor money to develop industry. We must eat, that is certain, yet if everyone has to raise what he eats because he raises so little, then he can't even provide the means of keeping the soil fertile and continue its productivity.

We must recognize that China and India and many other so-called "backward" nations cannot develop their natural resources or ever hope to raise their standard of living until some way is found to free them from their present and long-standing abject slavery to the soil from which they obtain only a bare existence under current conditions.

The mechanization of agriculture, in a broad sense, means liberation of the people it serves, liberation from senseless toil along with an opportunity for development in new-found leisure hours. With every cargo of machinery we may send to these nations in the post-war period, however, we should send also a teacher or missionary. It would be far better for the world that some backward peoples should die in their ignorance than that we should see repeated the Japanese experiment in which we educated and liberated a barbarous people only to have them use our very tools of liberation to stab us in the back. We see also in Germany a barbarous people liberated from the production of food only to use their time in destroying all that is right and decent in civilization. No one can estimate how great might have been Germany's contribution to world civilization had not her people been motivated and led by military barbarianism.

Machinery never "made" a people great, for civilization is essentially a spiritual thing, a fact we see exhibited in Norway and Sweden and elsewhere. These people are not wealthy, as we appraise wealth, but they have what it takes to make a continuing fine contribution to a world of personal and national integrity, industry and honor.

High National Income Means Greatly Increased Food Consumption

If we, as a nation, maintain a high income as it is hoped after the war . . . and as seems necessary to our economy . . . if we are to carry our staggering tax burden, then agriculture will continue to find ready markets for its products. The present food shortages make rationing necessary. One of the potent factors in such shortages is the fact that the average workman now can afford to buy foods he never bought before. We ship only about 6 per cent of our food to our allies, and we always did feed our soldiers when they were home—perhaps not

as well as now—but they were part of our population as civilians and, of course, consumed food like the rest of us. At present ration values, the average family is able to buy more food than it could afford before the war.

We Must Preserve the Small "Family" Farm

I would like to make a plea here for the small "family" type farm, the farm which is the cradle from which came America's great national and international figures not so long ago. We must strive to preserve it because it represents, even in decadence in some sections of our country, the ideal American way of life. The "Farm Foundation," organized 10 years ago, had for its purpose the preservation of the family-sized farm and the founders looked with concern at the continuing growth of large acreage farms of the commercial type without, at the same time finding ways for improving the efficiency and productivity of the small unit to meet such competition. What was the Foundation's concern should be ours also, for there are thousands more small farms than large ones and they do represent the most desirable form of American family life. It is a worthy aim and, I believe, can be made a profitable one for all having a part in it. This is a situation which challenges the Electric industry today.

It is evident that unless the small farmer can find a way to eliminate drudgery and make his work yield a monetary return comparable to the industrial workers, he will gradually abandon his farm and move to the city, as his sons and daughters already have done. The process will be speeded up greatly if he cannot earn enough on his farm to provide a standard of living comparable to that enjoyed by his city brother. We of the Electric Industry must contribute our share to the over-all improvement of life on the farm. Migrations from farm to city, when at a rapid rate, bring all sorts of complicated situations. Overcrowding, discouragement, disappointment, maladjustment, and many other conditions are so well recognized that they need only mere mention here.

Most everyone has a desire to aid the farmer. Land-grant colleges and experiment stations have been established all over the country and have done much to make possible the freedom of men from the soil in an orderly way, one that has been a backbone to industrial progress. They have not thought of it that way, but we of the electrical industry take pride in the accomplishment that no war industry has lacked power in the hour of our greatest national need. We, of that industry, would not be here if someone had not made it possible for us to buy our food, instead of having to raise it ourselves. Better methods taught in our schools and colleges and promoted through extension services in step with industrial programs loom large in this process of mass food production and great credit is due them and their predecessors for it. The people have invariably come to the aid of farmers also through constituted government agencies in time of emergency, but such help is not welcomed by the typical American farmer and he wants it to be purely temporary, not a permanent pattern. He wants to stand on his own feet and it's our job to help him do it. Rural Electrification is the new idea that stands ready, but it must be released and put to work. That's our job.

Edison's Dream Is Coming True

When Edison promoted and built the Pearl Street plant in downtown New York he said he had a new system of sub-dividing the electric current among many small users. This was in contrast to the then existing series street lighting systems. Edison built his plant in the heart of the city and his original system could not reach far. Now, however, engineers have made it possible to extend his principle of the sub-division of electricity to the last farm down the road and we have, in that, the possibility of great use in lifting the burden from the back of the small farmer, somewhat after the same manner that the traction engine has benefited the large farmer. We need, however, to develop practical, low-priced, small machinery adaptable to the needs of small farms and I would like to leave that challenge with you also.

As we have succeeded in electrifying at least enough of our homes to demonstrate what modern time—and money-saving conveniences are like, so have we also made great strides on some farms. However, the demand for rural electric line extensions in most sections of the country comes from only a dual-purpose desire—for light and a radio—with perhaps a washing machine and running water as the next things to be done electrically. The uses of electricity on all kinds of farms has been very limited in relation to its maximum potentiality. Like the small home, the small farm is the greatest market for electrification—if and when we develop suitable farm equipment to use this power, because small farms greatly outnumber the large units. The Electric Industry didn't begin to sell lighting equipment, irons, radios and other appliances on a big basis until we created the market for them in the home of the common man. The market before that had been almost entirely in the homes of the well-to-do. This "little man's" market was created very simply—through the manufacture of satisfactory equipment and appliances, and with that manufacture, intensive promotion, which included informative advertising.

More and more of our farmers must come around to the point of view of a county agent I know well. He is a small farmer himself and reasons this way: "When my electric bill is low, I know someone is working with dull tools which should have been sharpened with power-driven equipment . . . and dull tools cost me more money than the power and time to sharpen them."

The Challenge of Rural Electrification

The real challenge of Rural Electrification for us today is to take Edison's original idea for sub-dividing electric current to every farm, large and small, and develop machines that are useful, then promote and sell them—or see that they are sold—as soon as war conditions permit. There are many handicaps now, such as low horsepower single-phase motors, the necessity for wiring, either fixed or portable, and there are many counteracting advantages such as simplicity and easy automatic control. Mechanical and electrical research to overcome the enumerated handicaps and others that are currently recognized is the business of those selling machinery, but it is not a challenge to them alone, but to all of us.

World Will Be in Need of Food as Soon as We Can Get It Produced

War conditions have produced a serious world food shortage. For some time after the war we may expect our exports to remain high and it is likely, and desirable, that prices be such as to benefit Agriculture greatly. There will be a ready market for farm equipment as soon as it can be manufactured. We should pool our efforts to that end while, at the same time, we prepare promotional and selling plans. Nothing is accepted by the public, however, good as it may be for it, without great effort by the offerer. Our high standard of living is as much a tribute to salesmen of America who, throughout the years, would not take "No" for an answer, as to the inventive genius who first visualized the thing the salesman sold. Research and discovery of a

(*Continued on page* 32)

PERSONALS

HENRY B. BRYANS, executive vice-president of the Philadelphia Electric Company, has been elected president of the American Standards Association.

Mr. Bryans, a native Philadelphian, is a term trustee and member of the board of engineering education of the University of Pennsylvania, his alma mater. He is a director of the Philadelphia Electric Co., the First National Bank of Philadelphia and a member of the operating committee of the Edison Electric Institute; also, a member of the American Society of Mechanical Engineers, American Institute of Electrical Engineers, Pennsylvania Electric Association, Electrical Association of Philadelphia and the Franklin Institute.

EDWARD T. GUSHEE, assistant to the president, Detroit Edison Co., has recently been appointed chairman of the War Production Board's Detroit area Production Urgency Committee. This committee was established in October to determine the production programs which are feasible within the Detroit metropolitan area, which has been classified by WPB as a critical labor shortage area. This committee reviews all approved production schedules, contracts and proposals for new facilities. In addition it recommends where and to what extent curtailment of less-essential production will be effected and, in cooperation with the Office of Civilian Requirements, recommends adjustment of civilian production and service within the Detroit area.

O. J. MILLER, who has been associated with the Commonwealth & Southern Corp. in Jackson, Mich., as assistant supervising engineer in the engineering department since 1940, has resigned to become system operating manager of the Duke Power Co., with headquarters in Charlotte, N. C.

Mr. Miller became identified with the public utility industry in 1916 with E. W. Clark & Co., management corporation, in Columbus, Ohio, where he handled engineering assignments involving design and construction on various projects. In 1920 he joined the Tennessee Electric Power Co. as engineer in charge of various engineering, operating and construction activities. Four years later he was made superintendent of production, operation and maintenance, and subsequently was appointed manager of the production and transmission department. After the sale of the electric power facilities of this utility, Mr. Miller became manager of the transportation system in Nashville. It was in 1940 that he joined the staff of the Commonwealth & Southern Corp. in Jackson.

GEORGE R. RICE, who was first employed by the Puget Sound Power & Light Co. back in 1921 in Tacoma and for many years connected with the company's interests in the East, has returned to the home offices of the company in Seattle as its new financial and operating analyst.

RICHARD E. HODGES, formerly assistant general manager of the Kentucky & West Virginia Power Co., Ashland, Ky., has been appointed general manager of the company to succeed M. C. Funk, who has assumed new executive duties with the Appalachian Electric Power Co.

A native of Alderson, W. Va., and a graduate of the college of engineering at West Virginia University, Mr. Hodges entered the employ of the Appalachian Electric Power Co. at Sprigg, W. Va., as a meterman in 1926. After serving in the new business, substation and power plant departments he was promoted to assistant manager in the Pikeville district of the Kentucky & West Virginia Power Co. and was appointed district manager of that district in 1929. He served in that capacity until 1940, when he became assistant general manager of the company.

DEAN H. MITCHELL, president of the Northern Indiana Public Service Co., Hamond, Ind., has been elected president of the Indiana State Chamber of Commerce.

WILL T. CLARK has been named manager of the residential division of the Cleveland Electric Illuminating Co. In addition to his new work with the Illuminating Company, Mr. Clark will take over some of the duties at the Cleveland Electrical League formerly performed by League President J. E. North. Mr. North is now sales manager of the Illuminating Company. Mr. Clark has been active in the local league since 1936, serving as a member of the speakers' bureau, director of promotional activities before the war, and later as secretary of the league. He has a wide acquaintanceship with members of the electrical industry in Cleveland. Before his connection in Cleveland he spent two years as director of lighting sales for the Pennsylvania Power & Light Co. in Allentown and was connected with both the lamp and plastics division of the General Electric Co.

DEAN L. DUTTON, former chief operator at the Oneida plant of the Utah Power & Light Co., has been made superintendent of the Ashton plant at Ashton, Idaho. He replaces D. O. Rawson, who has been made superintendent of the Weber plant.

HARRY F. JENSEN of Ridgefield Park, N. J., has been elected an assistant treasurer of Niagara Hudson Power Corp. Mr. Jensen's association with the company began in 1931 and he has been cashier for the past nine years. He was previously employed by F. L. Carlisle & Co., Inc.

ROBERT P. DOUGLAS has recently been named safety engineer for the Detroit Edison Co. He will be responsible, under the direction of W. W. Williams, supervisor of lines and transportation, for coordination of all safety work in the company. George Opp, formerly safety engineer, was appointed safety consultant, subject to call by the chairman of the safety committee when his services are required. He will advise, upon request, on new methods and equipment affecting company safety practices.

H. H. PLANK has been appointed assistant to vice-president and general manager of the Delaware Power & Light Co., Delaware Coach Co. and its subsidiaries, with headquarters in Dover. Mr. Plank has spent part of his time with the Delaware utility during the past 18 months in the new-business department. In addition to his duties in the capacity of assistant to vice-president and general manager, he will be specifically in charge of all promotional activities, merchandising, power sales, advertising, rates, contracts and all other ac-

tivities incidental to the promotion of new business of all companies.

Mr. Plank is a graduate of Clarkson College and for a number of years has been associated with the U. G. I. Co. and its subsidiary companies in connection with the new-business activities of these companies.

C. A. KITTREDGE, for the past 15 years Gadsden district manager of the Alabama Power Co., has retired from that position for reasons of health and W. M. Wade, superintendent of the southern division, has been named to succeed him. Before his assignment to the Gadsden district, in 1928, Mr. Kittredge spent several years as superintendent of the southern division. He will remain with the company in a consulting capacity. Mr. Kittredge was honored at a farewell gathering attended by 40 of his associates.

JAMES B. HAWKINS has been appointed manager of the central division of Virginia Public Service Co., Alexandria. Mr. Hawkins will succeed Raymond Hunt, who has been assigned special duties with the general engineering department of the company. Both men will have headquarters in Charlottesville. A graduate of Virginia Polytechnic Institute, Mr. Hawkins spent one year in the test department of General Electric Co. in Schenectady. In 1926 he joined the Virginia Public Service organization as division engineer for the western division and manager of the Clifton Forge district. Mr. Hawkins was transferred to Alexandria in 1940 as superintendent of operations for the northern division, the position he held until his recent transfer to Charlottesville as central division manager. In his new position Mr. Hunt will specialize in the preparation of the company construction budgets and, in addition, will be assigned special duties which have to do with war-time operations as well as post-war plans.

DR. GEORGE W. ALLISON, prominently connected with the electrical industry for a number of years, has become identified with the economic development and research department recently organized by the Puget Sound Power & Light Co. For many years connected with the Edison Electric Institute, Dr. Allison is nationally known for his activities in the "Better Light" and the "National Cookery Council" programs as a representative of E. E. I.

CONVENTIONS AND MEETINGS

JANUARY, 1944

19-20	Missouri Valley Electric Association, Annual Power Sales meeting, Continental Hotel, Kansas City, Mo.
19-21	American Society of Civil Engineers, Annual Meeting, New York, N. Y.
20-21	Canadian Electrical Association, Annual Winter Conference of Committees, Mount Royal Hotel, Montreal, Can.
24-28	American Institute of Electrical Engineers, New York, N. Y.

FEBRUARY

3-4	Sales Executive Conference, Netherland Plaza Hotel, Cincinnati, O.
7-8	Prime Movers Committee, EEI, Copley Plaza Hotel, Boston, Mass.
11-12	Accident Prevention Committee, EEI, William Penn Hotel, Pittsburgh, Pa.
14-15	Electrical Equipment Committee, EEI, Netherland Plaza Hotel, Cincinnati, Ohio
14-15	Transmission and Distribution Committee, EEI, Netherland Plaza Hotel, Cincinnati, Ohio

APRIL

3-5	American Society of Mechanical Engineers, Spring Meeting, Birmingham, Ala.
23-27	National Electrical Manufacturers Association, Chicago, Ill.

MAY

8-11	National Fire Protection Association, Chicago, Ill.

Present Challenge

(*Continued from page* 30)

need, and the development of the necessary machinery for satisfying that need, along with promotion and selling, are all equal in importance. We must keep them in proper balance, not neglecting one for another.

I should like to leave with you the challenge that we must pool all our efforts and resources now. Let's tie together the various kinds of knowledge we have with the research and practical experience we have gained in every part of the country to develop the largest potential farm market, which must include the small farm. Then let us ask the manufacturers to work with us to develop the machinery that will answer the needs we have discovered, or will discover, at prices and upon such terms that the small farmer can afford to buy and use such machinery. Then, too, let's get all our power people who have already spent millions of dollars on rural line extensions, to promote and sell the manufacturers' products as soon as they are available for farm installation. The return on extensions to small farms will depend greatly on their mechanization. We all know a lot, as individuals and groups, but it is only by pooling this knowledge that we may enjoy its maximum benefits. Let's dare ourselves to try it and see what happens.

Let's take back to the farm the things the farm has made it possible for us to have. Freedom from hard labor, spare time for advancement, a proper living income upon which the farmer may raise a family and be solvent and self-contained while so doing . . . these are the things I speak of. It's only a matter of the repayment of a debt we non-farmers owe to the farmers, and it is none too early to make the first payment right now!

Correction to Table of REA Operating Statistics

THE table of operating statistics of REA Systems 1942, which appeared in the December, 1943, EEI BULLETIN, showed *sales of electricity for all purposes,* including, in a few states, electricity sold at wholesale by one cooperative for resale by another. This results in a duplication of billings which serves to increase the average kilowatthour billed per customer and to reduce the average revenue per kilowatthour billed. REA statistics do not show sales to ultimate consumers and there is no way to compute such figures. In four states, however, the wholesaling cooperatives are readily identifiable and, with these eliminated, the resulting ultimate consumer figures are as follows:

Corrections to Table — Eliminating Resale Energy

"OPERATING STATISTICS OF REA SYSTEMS, 1942"

Year 1942

	Kwhr. Billed	*Avg. No. Customers*	*Kwhr. Year*	*Gross Revenues*	*Avg. per Kwhr.*
Iowa	49,447,645	50,472	980	$2,970,402	6.01¢
Minnesota	54,334,304	52,160	1,042	3,315,281	6.10
North Dakota ...	5,111,481	4,814	1,062	299,786	5.87
Wisconsin*	28,575,145	30,863	926	1,725,937	6.04

* The combined wholesale and retail figures in the table previously published showed for Wisconsin an average costomer use of 1,963 kilowatthours and an average price of 3.46 cents per kilowatthour. The figures for the other three states were similarly affected.

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